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George Erdosy (Ed.)

THE INDO-ARYANS OF ANCIENT SOUTH ASIA

INDIAN PHILOLOGY AND SOUTH ASIAN STUDIES

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The Indo-Aryans of Ancient South Asia

Indian Philology and South Asian Studies

Edited by
Albrecht Wezler and Michael Witzel

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Language, Material Culture and Ethnicity

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In Memoriam

Gyorgy Erdosy Sr. (1928–1991)
George F. Dales Jr. (1928–1992)
Walter A. Fairservis Jr. (1921–1994)

Foreword to the Series

This is the first volume of a new series called *Indian Philology and South Asian Studies* – which is not intended to be a simple updating of Bühler's great collection of monographs, i. e. the *Grundriss der Indo-Arischen Philologie und Altertumskunde* that began to appear at the end of the 19th century. Scope, objectives and methods of Indology and South Asian Studies have changed considerably since then. We are no longer as optimistic as our predecessors nor, hopefully, as selective (or limited) in our approach as they were a hundred years ago when attempting a first summary of the knowledge, accumulated in the first 100 years of Indology and indeed considerable, within the covers of a few volumes.

The new *Indian Philology and South Asian Studies* thus do not aim at a simple positivistic listing up of facts and figures in a limited number of fields. Rather, we aim at a comprehensive coverage of all the fields of South Asian Studies, including, wherever possible, the indigenous understanding of South Asian Culture in all its aspects. Certain areas and fields, like literary or religious history where Indian *śāstric* sciences do not possess a corresponding approach, will, it is true, have to be described by using Western norms and approaches only (e.g. philology in the strict sense or history). The new *Indian Philology and South Asian Studies* will therefore reflect the ongoing complex process of the "encounter" and the "dialogue" between India and the West, and (and, as far as possible, also the "encounters" of India with East and South East Asia as well as that with the Near East and Central Asia).

We aim at a complete description of the various aspects of South Asian Civilization, based, first of all, though of course not exclusively, on texts – in short, a description which is philological, philology being understood as a 'Kulturwissenschaft' based on texts. *Indian Philology and South Asian Studies*, however, go beyond what some may regard as the narrow confines of the discipline they call "Indology" as opposed to a supposedly wider discipline of "Indian" or "South Asian Studies". This necessitates the investigation and comparison of all aspects of South Asian culture, especially but not only of those reflected in the texts. Note must therefore be taken of fields as diverse as metrics, medicine, astronomy, flora and fauna, local geography, music, or the belief systems of tribal peoples.

The aim of each volume in the series is a brief and structured presentation of reliable knowledge in each particular field, discipline or subdiscipline, including all important facts and figures expected in a survey as well as the more important literature on the subject treated; and of course a discussion of the outstanding problems in each field will be added, as also of research desiderata or possible future avenues of research.

We propose to include reflections on method, ways of procedure commonly agreed upon, and the rarely mentioned, often unconscious presuppositions we work on– in short, we wish to include, wherever advisable, a discussion of the methodology of the various subjects treated in *Indian Philology and South Asian Studies.*

We also wish to contribute to discussion in the field of the history of ideas as revealed by the texts and by other documents of the South Asian cultures, and, naturally enough, this will include treatment of those areas which bridge two or more traditional disciplines.

Indian Philology and South Asian Studies are divided into various sections dealing with the major branches of enquiry: language, philosophy, history, religion, art, etc.; each section has its own editor. We have a framework in mind but we will be flexible in order to accommodate new developments in the various fields, and the list will hence be updated from time to time. And this is just one of many reasons for the decision to publish the plan of *Indian Philology and South Asian Studies* only later, and to count the volumes of the series in the order the authors present them for publication.

It should, however, be noted that we will also publish volumes that do not fall within one sole section, or even part of a section of the system adopted by us, but which nevertheless are, in our view, of great significance for Indian Philology and South Asian Studies. This holds good for the present volume, too, with which the series begins. For archaeology and the study of the prehistory and early history of South Asia have made great progress over the past fifty years. However, the evaluation of the materials discovered and studied has suffered from a number of drawbacks, among which the following are important: (a) the persistence of older models of interpretation in archaeology, such as the identification of a certain material culture with a certain "people"; (b) the (recently increasing) nationalistic trend in the evaluation of texts and archaeological finds; and (c), most importantly, a vicious circle in the interpretation of the various materials which still persists in the exchange of opinions and results between archaeologists, linguists, philologists and historians. For example, archaeologists all too frequently build the interpretation of their materials on the work of philologists and linguists, who, in their turn, have reached their conclusions on the basis of the work of archaeologists

– who have depended on the latter. This vicious circle has to be broken through close cooperation between scholars of the said disciplines. It is hoped that the proceedings of the Toronto Conference now being published are a beginning in this sense. The present volume offers an up-to-date view of the problems confronting the study of the earliest (pre-) historic period in South Asia, neighbouring Iran and Central Asia as far as these areas are of importance for the prehistory of South Asia.

Finally we should like to state that we invite all colleagues to make proposals and to participate in this great undertaking. It can be carried out only with the enthusiastic assistance of all interested in the progress of our discipline.

September 1995

Albrecht Wezler
Michael Witzel

Preface

Sir William Jones' *Third Anniversary Discourse on the Hindoos*, delivered to the Asiatic Society of Bengal on 2 February, 1786, marks the genesis of an idea which influences perceptions of South Asia to this day: to wit, the distribution of modern languages and ethnic groups, and frequently strained social relations, are all habitually expressed in terms of a racial divide, which is attributed to an "Aryan invasion" of the Subcontinent some 3500 years ago. Adherents of the "Aryan hypothesis" ranged from imperial administrators to nationalist leaders in the 19th century and from prominent scholars to religious fanatics in the 20th. Although its support of the *status quo* will probably ensure its survival on the policital stage,[1] the idea has recently been challenged by archaeologists who – along with linguists – are best qualified to evaluate its validity. Lack of convincing material (or osteological) traces left behind by the incoming Indo-Aryan speakers, the possibility of explaining cultural change without reference to external factors and – above all – an altered worldview (Shaffer 1984) have all contributed to a questioning of assumptions long taken for granted and buttressed by the accumulated weight of two centuries of scholarship.

However, archaeology offers only one perspective, that of material culture, which is in direct conflict with the findings of the other discipline claiming a key to the solution of the "Aryan problem", linguistics. The membership of Indic dialects in the Indo-European family, based not only on lexical but structural criteria, their particularly close relationship to the Iranian branch, and continuing satisfaction with a family-tree model to express these links (Baldi 1988), all support migrations as the principal (albeit not sole) means of language dispersal. In the face of such conflict it may be difficult to find avenues of cooperation, yet a satisfactory resolution of the puzzles set by the distribution of Indo-Aryan languages in

[1] In spite of spirited opposition, which has intensified recently – cf. Biswas 1990; Choudhury 1993; Telagiri 1993. Unfortunately, political motivation (usually associated with Hindu revivalism, ironic in view of Tilak's theory of an Arctic home) renders this opposition devoid of scholarly value. Assertions of the indigenous origin of Indo-Aryan languages and an insistence on a long chronology for Vedic and even Epic literature are only a few of the most prominent tenets of this emerging lunatic fringe.

South Asia demands it. The present volume aims for the first step in that direction, by removing mutual misconceptions regarding the subject matter, aims, methods and limitations of linguistics and archaeology, which have greatly contributed to the confusion currently surrounding "Aryans". Given the debates raging on these issues within as well as between the two disciplines, a guide to the range of contemporary opinion should be particularly valuable for anyone wishing to bridge the disciplinary divide. Although the studies focus on the transition from Bronze Age urbanisation on the Indus to Iron Age urbanisation on the Gaṅgā, their conclusions will profoundly affect our perception of the subsequent course of South Asian civilisation. At the same time, the range of issues addressed by the papers should find relevance well beyond the geographical confines of the Subcontinent; indeed, the volume neatly encapsulates the relationship between two disciplines intimately involved in a study of the past.

The papers presented here were first delivered during a conference on Archaeological and Linguistic Approaches to Ethnicity in Ancient South Asia, held in Toronto on the 4th, 5th and 6th of October, 1991.[2] They are organised into two sections. The first contains papers which explicitly addressed theoretical issues involved in a study of material culture, paleoethnicity and language change, particularly concerning the nature of source materials, the definition of fundamental analytical units, and procedures for the construction and testing of hyoptheses combining linguistic and material-cultural evidence. It begins with a survey of theoretical issues, along with a plea for interdisciplinary cooperation, by G. Erdosy. He argues that linguists and archaeologists have been studying two different (albeit related) problems – the current distribution of languages in South Asia on the one hand, and the transition between the Indus and Gangetic Civilisations on the other – and that much of the present confusion has been engendered by the view that an invasion of Indo-Aryan speaking races in the 2nd millennium B.C. explains both. Only recently have scholars of both disciplines begun to unscramble the

[2] With the exception of contributions by P. O. Skjærvø and K. R. Norman, which were solicited in order to fill certain gaps in the range of subjects covered. Conversely, the conference included presentations by T. C. Young ('The Iranians: Medes and Persians') and K. K. Young ('Tamil identity as portrayed in Sangam literature') which, due to constraints of time, could not be revised by their authors for publication. Lack of time also prevented R. H. Meadow from participating in the revision of a joint paper with F. T. Hiebert for publication; their original presentation ('Late prehistoric interactions between Central and South Asia') is now entitled 'South Asia from a Central Asian perspective', under the sole authorship of F. T. Hiebert. Although thus excluded from the final publication, I wish – as organiser – to register my gratitude to the above scholars here for their stimulating contributions to the conference itself.

various processes conflated into an "Aryan invasion(s)", thereby laying the foundations for more meaningful cooperation. Erdosy also suggests, that for all its shortcomings, Renfrew's study of Indo-European origins[3] is on a sound methodological footing when it insists on comparisons of cultural dynamics derived independently from linguistic and material-cultural data, instead of the traditional grouping for languages and linguistic boundaries in the archaeological record. This point is illustrated with reference to the problems of the initial dispersal of Indo-Iranian languages, and of the widespread adoption of Old Indo-Aryan in South Asia after its arrival there, in the context of the transition from the Indus to the Indo-Gangetic cultural tradition.

The second paper, by K. A. R. Kennedy, offers of a historical overview of linguistic, archaeological and, particularly, physical-anthropological research. The author's principal conclusion, based on his own studies, is that while discontinuities in physical types have certainly been found in South Asia, they are dated to the 5th/4th, and to the 1st millennium B.C., respectively, too early and too late to have any connection with "Aryans". What is more, since the latter are a cultural, not a biological, construct, they could never be identified in the osteological record.

Questions of identity, and the nature of our source materials, so crucial to the resolution of the "Aryan problem", occupy the attention of M. M. Deshpande, as well. Written from the standpoint of the linguist, to complement the preceding statements by, respectively, an archaeologist and a physical anthropologist, his paper assesses the quality of the linguistic data preserved in the Ṛgveda. It also revisits the controversies surrounding the contact and convergence of Indo-Aryan and Dravidian languages in prehistoric times, as exemplified by the development of retroflex sounds in the former. In his conclusions, Deshpande argues for the careful separation of ethnic, linguistic and cultural groups; and while he deplores their loose identification with archaeological assemblages, he remains cautiously optimistic about interdisciplinary cooperation.

The succeeding contribution, the first of two by M. Witzel, also begins by assessing the quality of linguistic (and historical) data obtainable from the Ṛgveda, along with the potential of a study of linguistic stratification, contact and convergence. Next, the evidence of place names, above all hydronomy, is scrutinised, followed by an evaluation of some of the most frequently invoked models of language change, in light of this analysis. As Witzel stresses, images of mass migration may have originated with 19th century linguists, but exist today principally in the minds of

[3] presented in the greatest detail in Renfrew 1987, although anticipated in Renfrew 1973, and summarised in Renfrew 1988 (followed by an extensive critique from a variety of authors), 1989 and 1990.

archaeologists and polemicists. In conclusion are outlined some obstacles to a writing of early South Asian history, including outmoded models of language change, overreactions to them (by denying the validity of any migrationist model) by both archaeologists and Hindu fundamentalists, and the continued uncritical use of late, Epic and Puranic, materials in research.

Placed against Witzel's contribution, the paper by J. Shaffer and D. Lichtenstein will illustrate the gulf still separating archaeology and linguistics. It reflects recent disillusionment with the traditional paradigms dominating archaeological explanation be the cyclical models of cultural growth-florescence-decay, the continuing prominence – in South Asian archaeology at least – of diffusionism, or the obsession with the "Harappan Civilisation" at the expense of other social groups constituting the cultural mosaic of the Greater Indus Valley. Apart from the influence of 19th century ideas on the civilising mission of European powers, such views have also been fostered by an inadequate definition of "cultures" as recurring assemblages of artefacts (after Childe 1929). The authors, therefore, attempt to construct new analytical units based on a study of material culture, with special focus on the concept of "cultural tradition". The paper builds on an earlier study Shaffer (1991), by placing emphasis on hitherto neglected structural features of cultural traditions; more importantly, it demonstrates by way of an example the potential of this method to lay bare the dynamics of long-term cultural change. The new concepts mark a significant advance in ways of handling the material culture of South Asia. Although they could certainly accommodate models of language change, however, the authors stress the indigenous development of South Asian civilisation from the Neolithic onward, and downplay the role of language in the formation of (pre-modern) ethnic identities.

The last two papers, contributed by O. Skjærvø and A. Sharma, broaden the horizons of the volume in different ways. The former assesses the potential of ancient Iranian (particularly Avestan) literature for a study of linguistic and cultural change on the Iranian Plateau – an issue of considerable interest to Indologists, given the close relations between Indic and Iranian languages, which argues for their common descent. Although not as extensive, or well preserved, as the Vedic tradition, the Avestan texts could shed considerable light on the evolution of Iranian languages and society, once (formidable) problems of chronology are resolved. Sharma, by contrast, outlines, and pleads for more careful consideration of, traditional attitudes towards such issues as the dating and historical veracity of Vedic literature; in addition, he considers some of the contemporary, South Asian dimensions of the "Aryan problem", which continues to inform political relations in various parts of the Subcontinent.

Although papers in the second section also contain discussions of theoretical issues, their principal aim has been to illuminate aspects of the "Aryan problem" through extensive case studies. They thus provide an excellent cross-section of the range of issues examined, and of approaches adopted, within both disciplines even if they (with the exception of Southworth's contribution) rarely venture outside their own field of specialisation. The first three papers have been contributed by archaeologists, who may be classified into two groups: those who accept that some movement of people from Central to South Asia took place in the 2nd millennium B.C., and those who feel that the dynamics of South Asian cultural traditions are sufficient to explain the transition from the Indus to the Gangetic Civilisations. The contribution of F. T. Hiebert belongs to the first category: the provides an exhaustive analysis of the history of interactions between Central and South Asia, made possible to a large extent by the recent opening up of Russian Turkestan to foreign scholars. The strength of contacts, according to this analysis, reaches a peak in the 1st quarter of the 2nd millennium B.C., when even some – small scale – population movement can be detected in the direction of the Indo-Iranian Borderlands. It is at this time that the khanate structure of Central Asia came to be adopted by South Asian social groups, leading to the type of society described in the earliest South Asia literature. It is this process, rather than the bare fact of population movements, which plays a decisive role in the course of South Asian history.

In a similar vein, W. A. Fairservis compares the social structure described in the Ṛgveda to that revealed by excavations at the major Bronze Age urban centre of Altyn Depe. Several crucial arguments follow: 1) During the Bronze Age, major urban civilisations flourished in Central and South Asia, which we may tentatively ascribe to Elamo-Dravidian speakers. 2) They were connected to one another – at least partly – by mobile pastoral groups existing on their periphery and, perhaps, speaking Indo-Iranian languages. 3) Towards the early 2nd millennium B.C. dominance shifted from the sedentary urban to the mobile pastoral group in both areas; although this may have entailed some population movement, it is this shift in power between two coexisting groups which is crucial. 4) The shift in power also fostered the adoption of Indo-Iranian (OIA) languages in South Asia along with a class based social structure first developed in Turkestan. Although the finer points of this elegant scheme remain to be worked out, it will provide a valuable stimulus to further discussion, and only deepens our sense of loss at the tragic death of the author just prior to the publication of this volume.

By contrast, the final discussion, by Kenoyer, stresses that the cultural history of South Asia in the 2nd millennium B.C. may be explained without reference to external agents. The points is illustrated by a study

of craft traditions and long distance trade networks. On the one hand, the former exhibit a surprising degree of continuity from the Indus Civilisation onwards; on the other, the latter are severed precisely at the time when the postulated "Aryan invasion" from Central Asia took place. Neither is it correct to speak of a systems collapse since several areas continued to support a hierarchy of settlements and flourishing craft traditions, the latter relying now on a more limited range of raw materials thanks to the said collapse of long distance trade networks. Such views will serve as a much needed antidote to traditional explanations, although they remain to be reconciled with the principal concern of South Asian linguistics, namely the evidence for the external origins – and likely arrival in the 2nd millennium B.C. – of Indo-Aryan languages. They are also a reaction to the concept of cataclysmic invasions, for which there is little evidence indeed, although such concepts are principally held by archaeologists nowadays, not by linguists who postulate more gradual and complex phenomena.

An illustration of the last statement is provided by the first of three contributions by linguists. F. Southworth begins by defining speech communities as basic units of analysis and continues by examining the history of the two most prominent speech communities in South Asia, namely Indo-Aryan and Dravidian. Their internal subdivisions and evolution are studied, followed by their interaction in pre- and protohistoric times. The central theses are that the distribution of Dravidian speakers must have been much wider in the past and, based on the evidence of substratum influences on Indo-Aryan, that they must have adopted an Indo-Aryan language throughout the northern part of South Asia. Acculturation, therefore, and not genocide or forcible expulsions are responsible for the present dominance of Indo-Aryan languages.

Southworth's broad survey is followed by the much keener focus K. R. Norman on the existence of dialectal variation in Old Indo-Aryan. This must largely be reconstructed from Middle Indo-Aryan due to the suppression (in oral transmission) of much of the variation in the earlier literature under the influence of Pāṇini. In particular, MIA variants of forms that are clearly Indo-Aryan, but are unattested in Old Indo-Aryan, are brought together in order to show the existence of OIA dialects. The existence of such dialects is, in turn, ascribed to the arrival of Indo-Aryan speakers in several waves, and to their subsequent isolation from one another, and interaction with the speakers of non-Indo-Aryan languages, within South Asia. Dialect variation also occupies the attention of R. Salomon, who takes his analysis a step further: apart from identifying dialectal variation he examines whether they may be correlated with certain literary genres and whether the latter can, in turn, be ascribed to certain social groups.

Together, the last three papers exemplify the painstaking research required even to create the building blocks for linguistic theories, and the progress already made in that direction. Similarly, M. Witzel's second paper demonstrates that the study of the spatial and temporal parametres of the Ṛgvedic hymns has advanced far beyond the simplistic notions generally held, especially in English (only)-speaking academic communities. His study (one in a series of important contributions – see also Witzel 1980, 1987, 1989, 1991) takes a major step towards the writing of early South Asian history, by removing two misconceptions: 1) that the Ṛgveda is a particularly difficult, indeed impenetrable, text and 2) that its study for the reconstruction of history is ultimately not very rewarding.

Rounding off the volume are two papers concerning the *soma/haoma* cult, which is at the centre of Old Indo-Aryan literature and ritual. The first, by Asko Parpola, draws on recent archaeological discoveries in Bronze Age Margiana and refines this author's earlier views regarding the spatial and chronological relationships of Indo-Iranian languages and of archaeological cultures in Central and South Asia (Parpola 1988). Parpola's paper is complemented by a study of the botanical evidence by H. Nyberg. He concludes that the effects of certain substances on humans, the characterisation of *soma/haoma* in Ṛgvedic ritual texts, and the geographical distribution of certain plant species, when considered systematically, suggest *ephedras* as the likeliest raw materials for the sacred Indo-Iranian libation.

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In conclusion, it is my pleasure to thank numerous individuals and institutions for their assistance both in the organisation of the conference and in the publication of its proceedings. Funding was provided by a grant from the Social Sciences and Humanities Research Council of Canada under their Aid to Occasional Scholarly Conferences program; it was supplemented by a donation from the Department of East Asian Studies of the University of Toronto. Support for the original grant application was provided by the Centre for South Asian Studies, and its directors Profs. Milton Israel (past) and Narendra Wagle (present). Logistical support – booking of accommodations and venues for the various sessions – was kindly extended by Professors Tim Barnes (Department of Classics and Trinity College, University of Toronto) and Frank Hoff (Department of East Asian Studies and Victoria College, University of Toronto). The smooth flow of the conference would not have been possible without the constant and cheerful assistance of Winnifred Louis and Nusha Keyghobadi; to the former I am also indebted for typing and initial editing of the

papers. Arrangements for publication of the proceedings were made with the help of Prof. Michael Witzel, one of the participants in the Conference. Last but not least, I could not have devoted the time and effort, to both the organisation of the sessions and the eventual publication, without the security of a Canada Research Fellowship awarded by the Social Sciences and Humanities Research Council of Candada. I hope the present volume will serve as a fitting tribute to their continuing commitment to academic excellence in Canada.

The progress of the present volume from conception to eventual birth was punctuated by the sad demise of my father in 1991, and of both founding fathers of the scientific study of South Asian prehistory, George Dales (in 1992) and Walter Fairservis (in 1994). This volume is affectionately dedicated to their memory.

Toronto, September 1995 George Erdosy

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George Erdosy

1. Language, material culture and ethnicity: Theoretical perspectives

Since the aim of the conference on palaeoethnicity has been to bring together linguists and archaeologists, it would be appropriate, by way of an introduction, to evaluate their relationship in the field of Indology and to identify recent developments which could facilitate their cooperation. This will be followed by a brief overview of the "Aryan problem", the most extensively documented case of ethnicity in ancient South Asia. The paper will conclude with suggestions for an interdisciplinary approach. As stressed in the initial invitation to contributors, our aim must, for the present, be to outline avenues to a solution, not to grope for the solution itself, and it is in this spirit that my observations are offered. Furthermore, given Kennedy's extensive historical survey (in Chapter 2), I have concentrated on recent, theoretical trends and on complementing the keener focus of succeeding chapters on individual issues. Finally, although the papers in this volume focus on a specific problem - the "Aryan invasions" of South Asia in the 2nd millennium B.C. - the theories and methods they invoke should be applicable to any study of palaeoethnicity.

Without the stigma of association with Nazism, the search for "Aryans" in South Asia has flourished, and ever since Wheeler's accusing finger pointed to Indra as the destroyer of Harappa, archaeologists have been enthusiastic participants.[1] However, combining the discoveries of archaeology and linguistics has been complicated by mutual ignorance of the aims, complexity and limitations of the respective disciplines, in spite of extensive, mutual borrowing of results. For example, ignoring fatal flaws in the definition of "culture" as a recurring assemblage of artefacts, linguists continue to seek the material traces of Indo-Aryan speakers in such entities as the "Ochre Coloured Pottery Culture".[2] For

[1] Wheeler 1947: 82. The idea was, in fact, mooted by Ramaprasad Chanda as early as 1926.

[2] See, e.g., Witzel's attempt to link Vedic schools and dialects with a succession of "cultures" defined by outstanding ceramic types (Witzel 1989: 241ff.). However, since archaeologists disagree amongst themselves about the principles established by Kossinna (1902) and Childe (1929), it would be unfair to expect linguists to discard them when they appear to serve their purposes well.

their part, (as Witzel points out in Chapter 4 of the present volume) archaeologists seldom achieve a profound understanding of either linguistics or the Vedic tradition, and continue to test simplistic models of "migrations" and "invasions" which no sensible linguist would advocate. Their conclusions are, nevertheless, seized upon by linguists, unaware of the shaky foundations on which those stand and desperate to find the physical traces of their elusive subjects. In addition, the two disciplines actually focus on two different problems: one is interested in explaining the current linguistic map of South Asia, the other strives to understand the transition between the Indus and Gangetic Civilisations. Consequently, the former regards "Aryans" first and foremost as speakers of a particular language, while the latter categorises them (often implicitly) in racial terms, a distinction that has seldom been appreciated. *It is the perception that the same process (namely an invasion of Indo-Aryan speaking races in the 2nd millennium B.C.) may explain their respective concerns, which brings linguists and archaeologists together*. This perception, however, combined with a partial understanding of each discipline by the other, has created a feedback cycle of misinformation upon which even the most seemingly unassailable theories depend. One of the first challenges posed by the "Aryan problem" will thus be the establishment of a more rational relationship between archaeology and linguistics.

As long as the conclusions pointing to "Aryan invasions" appeared to be mutually reinforcing, several inconsistencies were overlooked. However, having failed to identify the material traces of newcomers, archaeologists have grown weary of the concept, laying particular stress on the lack of convincing foreign parallels for any of the traits labelled "Aryan". I have already reviewed their arguments elsewhere (Erdosy 1989) and need only repeat that their opposition is based as much on a misreading of literary sources as an earlier generation's acceptance had been. For example, the local invention of iron smelting (Chakrabarti 1977b) is not in conflict with a theory of invasions, since it can be argued both that the authors of the Ṛgveda did not know iron (Pleiner 1971; or, even, Macdonell and Keith 1912,1: 31-32) and that the Ṛgveda contains no convincing evidence of invasions (Erdosy 1989). Neither is Painted Grey Ware of crucial importance (*pace* Gupta 1978, 1986), since its spatio-temporal distribution recalls the Late Vedic texts; viewed in this light, its lack of foreign prototypes is hardly surprising. On the other hand, physical anthropology's failure to demonstrate a racial divide in South Asia in the 2nd millennium B.C. (see Chapter 2 of the present volume) is quite conclusive, even considering the limitations of the available data.

Denial of the traditional model, however, also exposes a growing rift, precipitated by the collapse of Childe's model for the Near Eastern origins of European civilisation (Renfrew 1973) which dealt a crushing blow to migrationist explanations in archaeology. This is reflected here by the tendency to reject external stimuli as explanations either for the decline of the Indus Civilisation or

for the rise of complex societies in the Gaṅgā Valley. As Kenoyer's contribution (see Chapter 10) demonstrates, all these developments may be explained by the internal dynamics of South Asian cultures, an approach which threatens to render the entire problem of Indo-Aryan languages and their speakers irrelevant. By contrast, linguists, in attempting to explain the current linguistic map of the Subcontinent, continue to assume the immigration of Indo-Aryan speakers at the very same time that the transition from the Indus to the Gangetic Civilisation took place. On the surface of it, the chasm dividing the respective disciplines could not be wider. Where, then, does progress lie?

The first important development concerns terminology, always a good index of clarity. Until recently, archaeologists, and to a lesser extent linguists, had persistently confused "Aryans" with "Indo-Aryans".[3] The careless use of labels, of course, reflects the view that a single process produced both entities. Yet, the first term (based on the self-designation of the Vedic poets) denotes a multitude of ethnic groups subscribing to a newly emerging ideology, and the second identifies speakers of a subgroup of languages within the Indo-Iranian branch of the Indo-European family. Neither is coterminous with racial groups (Erdosy 1989, in press; Kuiper 1991; Chapters 2 and 3 in this volume). Now, for reasons discussed below, there is little disagreement about either the external origin of Indo-Aryan languages spoken today in South Asia, or the role played by migrations in their dispersal. However, the emergence of an *ārya*[4] ideology can be traced just as confidently to the geographical milieu of the Ṛgvedic hymns, bounded by the Indus and Sarasvatī rivers, and need not be linked to the spread of Indo-Aryan languages. Although the language of the Ṛgveda provides vital evidence for the study of the latter process, its contents do not: the hymns neither use language or race as markers of ethnic affiliation,[5] nor refer (expli-

[3] Note, for example, Allchin 1980: "Indo-Aryan" denotes (correctly) a linguistic entity on p.70, a cultural one on p.73 and an ethnic one on p. 89 where it is used in the same breath as "Aryan", which is otherwise regarded (correctly) as a cultural category. Masica (1991: 35-37) likewise equates "Aryans" with the speakers of an Indo-Aryan language and defines "Aryanisation" as the adoption of an Indo-Aryan language.

[4] In view of the conceptual baggage already attached to the term "Aryan", the use of the term *ārya* appears preferable - it is after all, the name the authors of the Ṛgveda gave themselves. As Szemerényi (1977 - quoted in Mallory 1989: 276) notes, it is of Ugaritic origin, meaning "kinsman" or "companion". Since Iranian contains the cognate *Airiya*, one must conclude (with Basham 1979) that the parent Indo-Iranian language already contained this expression.

[5] Unlike later texts which refer to "Aryan" and "Brahmin" speech (Macdonell and Keith 1912,2: 279-280), and note regional differences and barbarisms, the Ṛgveda contains only a few scornful references to hostile or uncouth speech (*mṛdhra-vāc*). As Macdonell and Keith (1912,1: 348) note, the term is applied in one instance to an indisputably *Ārya* tribe (the Pūrus in RV 7.18.13) and this alone renders Muir's translation of "unintelligible" speech unlikely. Monier Williams renders *mṛdhra* as "enemy", and thus the compound *mṛdhra-vāc* as "hostile speech"; Böhtlingk and Roth (1877,4: 888) likewise interpret the term as "scornful, abusive [speech]".

citly) to a home outside South Asia,[6] even if they were composed in Old Indo-Aryan. Instead of such traits, it is adherence to social and religious norms which was required of *āryas*, and the ferocity with which they clung to them is a clear indication of the inadequacy of alternative criteria.[7] The latter must have included place of origin: although it may sometimes be in the interests of a dominant group to deny external roots, it is significant that migrations within South Asia were frequently referred to in later tradition, which was also aware of dialectal differences.[8] The inescapable conclusion is that while Indo-Aryan languages have an external origin, the *āryas* of the Ṛgveda were not their carriers into South Asia (Kuiper 1967: 101).

The isolation of distinct, although not unrelated processes that have been conflated in a theory of "Aryan invasions" - dispersal of languages, ethnogenesis and the emergence of a new ideology in the wake of systems collapse in Late/ Post Harappan times[9] - is a significant first step. The recognition that the Ṛgveda has little to say (directly) about the first of these processes is just as important, since it allows for far greater freedom in defining the timing and nature of the appearance of Indo-Aryan languages in South Asia. Clarification of the linguistic and literary evidence will also help the incorporation of material culture into the analysis: the three processes just isolated will affect different aspects of the archaeological record, which will no longer have to be forced into the strait-jacket imposed by conformity to the hymns of the Ṛgveda.

Just as important has been the realisation that the first Indo-Aryan speakers were not expanding into a linguistic vacuum. Although such a conclusion is obvious to anyone remotely familiar with the archaeological record, the - often unstated - assumption that the speakers of Indo-Aryan either annihilated the bearers of other tongues, or expelled all of them from their original habitat, fostered a simplistic view of language replacement. The pioneering research of Emeneau (1954, 1956, 1962 and 1974) regarding the South Asian linguistic area

[6] For a contrary view of textual references to places outside South Asia, however, see Witzel in Chapters 4 and 14 of the present volume.

[7] Witness frequent diatribes against "god-less", "rite-less", "phallus-worshipping" and "niggardly" *dasyus* (Erdosy 1989: 37).

[8] Consider, for example, the oft-quoted passage (ŚB 1.4.1.14-17) describing (erroneously at that!) the colonisation of Videha; the distinction between *Āryas* who "moved eastward" and those who "stayed at home in the West" in BŚS 18.44 (Witzel 1989: 235; further examples quoted on p. 103, n. 12) and references to the wanderings of famous *purohitas* from one *janapada* to another. In the Ṛgveda, although there are references to migrations (e.g. 6.47.21), they are given without a geographic referent; one must also remember that the Punjab measures several hundred kilometres across and offers plenty of room for movement!

[9] More recently characterised as the Localisation Era of the Indus Valley Cultural Tradition (Shaffer 1991; see also Shaffer and Lichtenstein in Chapter 5 of the present volume). On the whole, Shaffer's nomenclature is much more informative than the traditional Early?Mature/Late Harappan classification which should now be discarded.

(where genetically distant languages exhibit lexical and structural parallels) has been followed by systematic analyses of substratum influences on Indo-Aryan tongues (Kuiper 1967; Masica 1979; Southworth 1974, 1990). The degree, nature and timing of the interaction between speakers of Munda, Dravidian and Old Indo-Aryan may remain a subject of heated debate (Hock 1975; Deshpande 1979, Chapter 3 of this volume), but the need to pinpoint specific processes leading to the predominance of new languages in the northern and western regions of South Asia is firmly established. Studies by Witzel, once again following leads provided by Emeneau (1966), regarding the subsequent formation of Vedic schools and dialects, are also significant in their emphasis on the social correlates of linguistic processes. Thus, at the same time that a simplistic theory of "“Aryan invasions” has been discarded, the links between the appearance and spread of Indo-Aryan languages in South Asia and important social changes have been reaffirmed.

It is at this point that archaeology and linguistics truly come into contact. It may never be possible to identify languages within material culture; however, as Renfrew (1988: 438) has observed, socio-cultural changes facilitating the convergence, divergence and replacement of languages are legitimate subjects of archaeological research. Recent expositions of the internal dynamics of South Asian societies by archaeologists, ironically borne out of opposition to migrationist explanations, have provided a much improved understanding of the Indus and Gangetic Civilisations, to parallel the linguists' concern with social factors.[10] Evidence in material culture for systems collapse, abandonement of old beliefs and large-scale, if localised, population shifts in response to ecological catastrophe in the 2nd millennium B.C. must all now be related to the spread of Indo-Aryan languages. At the same time, the possibility of tracing migrations within the archaeological record has not been ruled out. Dramatic discoveries of Indo-Iranian ritual practices in Bactria, Margiana, and the Urals (Mandel'shtam 1968; Gening 1979; Sarianidi 1986, 1990a, 1991), and of the intrusion of Central Asian traits into the assemblages of the Indo-Iranian Borderlands (Hiebert and Lamberg-Karlovsky 1992; Parpola 1988; Sarianidi 1979, 1990b) may well shed new light on the initial dispersal of Indo-Iranian languages. As is the case with South Asia, the postulated movements within Central Asia can now be placed in a processual framework, thanks to recent studies of the complex societies of Bronze Age Bactria and Margiana (Askarov 1973; Biscione 1973; Kohl 1984; Sarianidi 1990b, 1991; as well as Chapters 8 and 9 of the present volume).

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[10] See, for example, papers by Jarrige and Meadow (1980), Kenoyer (1989, 1991, Chapter 11 of the present volume), Mughal (1970, 1990a, 1990b), Possehl (1990), Shaffer (1986, 1991), Shaffer and Lichtenstein (1989, Chapter 5 of the present volume) and Yash Pal et al. (1984) for the Indus Valley Cultural Tradition, and by Lal (1984) and Erdosy (1988, in press) for the Gangetic Civilisation.

Such a convergence of interests around the impact of ethnogenesis and social change, on language on the one hand and on material culture on the other, replacing simplistic concepts of "diffusion", "migrations" and "invasions", lays the foundations for cooperation. It is in this light that two issues central to the "Aryan problem" need to be examined: 1) the emergence and initial dispersal of Indo-Aryan languages, out of the Indo-Iranian parent group and 2) the spread of Indo-Aryan languages within South Asia, and their links to ethnicity and the re-organisation of ideology and society during the transition from the "Indus" to the "Indo-Gangetic" Cultural Tradition. In both cases a discussion of linguistic facts will precede an examination of the archaeological record. Having urged contributors to focus on their own disciplines I shall refrain from offering specific solutions myself, reserving, instead, for the concluding section comments on the difficulties involved in reconciling the different classes of evidence at our disposal. The aim of the discussion is to set the stage for the narrower concerns of the succeeding chapters.

The origin and spread of Indo-Iranian languages

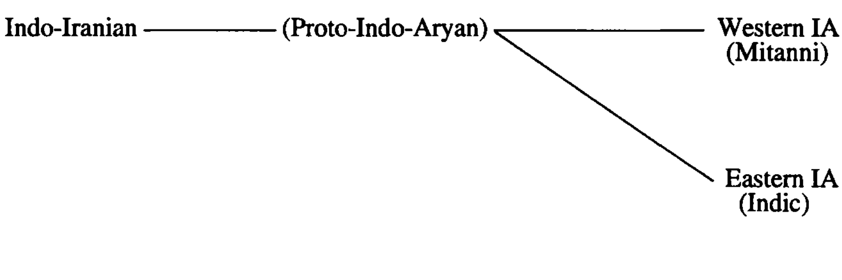
Occasional dissent notwithstanding, there is general agreement in placing the origin of the Indo-Aryan languages outside South Asia, above all due to their unassailable membership in the Indo-European family. A local origin of Indo-Aryan would have to assume either the South Asian roots of all Indo-European languages, or the existence of a vast area inhabited by PIE-speakers where there was sufficient communication for Schmidt's wave effects to produce distinct dialects. The first explanation makes no sense even for the narrower Indo-Iranian family, and as no historical entity comes even close to spanning the gap between the Elbe and the Indus, the second may also be ruled out.[11] A third model that would allow a South Asian origin for Indo-Aryan languages sees the creation of the Indo-European family by the convergence of distinct languages through communication, but it has been dismissed as an eccentric footnote to the otherwise distinguished career of the Russian linguist, N. Trubetzkoy (Baldi 1988).[12] Besides, several positive reasons in favour of an external origin can be cited: 1) surviving PIE names for trees in Indo-Aryan indicate a cold climate, while numerous plants and animals native to South Asia carry either borrowed or coined names - e.g. *hastin* (elephant); 2) evidence for contacts with Finno-Ugric langua-

[11] Although, interestingly, Mallory (1989: 257) postulates the presence of Indo-European speakers in a broad area between the Rhine and the Urals in 4500-2500 B.C., this is still well short of the geographical spread required in order to submit the Indo-Iranian branch to the wave theory.

[12] The limitations of convergence can be seen, after all, in the clear distinction remaining between Indo-Aryan and Dravidian languages in South Asia in spite of extensive interaction, frequently involving bilingualism, over four millennia - see the following section for details.

ges which are native to northern Eurasia; 3) evidence for non-Indo-European languages being spoken in South Asia prior to Indo-Aryan, which is afforded by substratum influence on the latter (to be discussed below) and by the current linguistic map of the Subcontinent.

Thus, questions about the emergence of Indo-Aryan languages cannot be answered without reference to the broader, Indo-Iranian group whose homeland, in turn, can only be determined on the basis of the internal subdivisions of the Indo-European family and the geographical location of its members. While the range of possibilities is narrow in comparison with Proto-Indo-European, it still extends from the Pontic-Caspian steppes to the southern Urals (Klejn 1984). Assuming, however (with Ehret 1976), that the best explanation is the one which requires the least displacement of people, it may be deduced that the most evolved stage of a still undifferentiated Indo-Iranian dialect was spoken in western Turkestan, with distinct languages emerging in the wake of migrations thence. The history of such movements has been the subject of a century of research, which it is impossible to review here. Yet, while differences persist over details, the key relationships within the Indo-Iranian family may be captured in the following diagram (which, for the sake of simplicity, omits the Nūristānī dialects of the Hindukush):



Following our model (based on Burrow 1973; see also Chapters 3 and 12 of this volume), Indo-Aryan languages emerged prior to their Iranian cousins. From a family-tree perspective, therefore, their speakers would have left the ancestral home first, appearing in both the Near East and South Asia by the mid-2nd millennium B.C. at the latest.[13] The realisation that the Indo-Iranian linguistic fragments preserved in Mitanni documents belong with the Indo-Aryan group

[13] As discussed elsewhere (Erdosy 1989, in press) the lack of references to urban centres in the Ṛgveda on the one hand, and the characterisation of the Sarasvatī as a mighty stream on the other, point to a mid-2nd millennium B.C. date for the hymns. Thanks to the long history of literacy in the Near East, the emergence of Mitanni in the Near East can be traced through securely dated inscriptions of the 14th century B.C..

led Burrow (1973) to postulate a "Proto-Indoaryan" staging area in Eastern Iran prior to the separation of the Western (Mitanni) and Eastern (Indic) branches by 1500 B.C.. This area was subsequently colonised by Iranian speakers, also issuing from the north, although not until most of their Indo-Aryan-speaking predecessors had already departed for their new homes. While the earliest historical records of Iranian speakers are furnished by the annals of Shalmaneser III (858-824 B.C.), the fact that they place the former near the Zagros mountains suggests that the movement into Eastern Iran had occurred considerably earlier. Recent views of the date of Zoroaster's reforms (Boyce 1975,1: 3, 190; Burrow 1973) support this contention.

Although few will argue with the broad genealogical outline, several issues remain hotly debated: the position of the Nūristānī dialects,[14] the relationship of languages (especially in northeastern India) which retained PIE *-*l*- to those (such as Mitanni and the dialects of northwestern India) that did not (Deshpande in Chapter 3 of this volume), the timing of substratum influences on Old Indo-Aryan, or the relationship between speakers of Iranian and Proto-Indoaryan in Eastern Iran, to mention a few. Further, remarkable similarities between Ṛgvedic Sanskrit and Old Avestan on the one hand, and the language of the Yajurveda *mantras* and Young Avestan on the other (Witzel 1989: 237-8), bely Burrow's view of an early separation of Indic and Iranian, unless one assumes that the similarities are due to shared innovations induced by the geographical proximity of these two groups of emerging languages. More seriously, there is no agreement either on the homeland of Indo-Iranian, or on the timing, nature and specific routes of dispersal of its speakers, the mechanism which linguists continue to invoke in explaining the spread of Indo-Iranian languages. In such a situation it is tempting to turn to archaeology for help and the quality of assistance that could reasonably be expected must be the next subject of discussion.

The archaeology of Indo-Iranian speakers

It would be premature, here, to test hypotheses regarding the precise location of the Indo-Iranian homeland, since the archaeological record is far too sketchy for the purpose. One may start, instead, with the already stated assumption that the most evolved stage of an undifferentiated Indo-Iranian language was spoken in western Turkestan. As this area has well documented contacts with both West Asia and South Asia one might expect traces of migrations, perhaps even of the

[14] Masica (1991: 21) quotes a consensus of recent opinion in favour of treating them as a separate group, rather than as part of the Indo-Aryan subdivision. See also Strand 1973; Morgenstierne 1975; etc..

two distinct waves predicted by Burrow's model, to appear in the archaeological record. Before proceeding, however, a note of caution must be struck. It would be futile to search for languages in material culture;[15] as Renfrew (1988, 1990) observed, we can only aspire to identify cultural processes which *may* result in linguistic change, such as migration, conquest, or systems collapse resulting in the adaptation of a new ideology (which, if couched in a new language, enables the latter to spread). Since Indo-Iranian languages are assumed (by linguists) to have been brought into South Asia by migrants, we must begin by examining the archaeological record for evidence of migrations, and then justify the link between these and the spread of the Indo-Iranian languages. The first of these tasks is accomplished with reference to material culture, the second proceeds by a comparison of the spatial-temporal parametres revealed by archaeology with that offered by linguistics. Our work will not be complete, however, until the postulated migrations are set within the broader framework of the cultural evolution of Central Asian societies or - should no migrations be identified - until alternative explanations are offered for the spread of Indo-Iranian languages.

The earliest links between Central and South Asia are provided by similarities, already remarked upon by Piggott, between the pottery of the Quetta Valley[16] and of the Namazga III phase of southern Turkmenistan. According to Lamberg-Karlovsky (1987), they were a by-product of the proto-Elamite colonisation of the Iranian Plateau (from the southwest) around 2900 B.C., with Shahr-i-Sokhta acting as an intermediary between the peripheral regions of Central Asia and South Asia. Neither the limited range of parallels in ceramic designs, nor the general direction of their dispersal, allows for an identification with any spread of Indo-Iranian languages or their speakers. Subsequently, during the Integration Era of the Indus Valley Cultural Tradition, dated by Shaffer (1991) to 2600-1900 B.C., Harappan colonies were established at Shortugaï and neighbouring settlements, probably for the exploitation of lapis mines nearby. Unlike previously, interaction was extensive and direct as evidenced, for example, by the appearance of Harappan seals at Altyn Depe. However, it was precipitated by developments in the Indus Valley and shows no convincing traces of any movement of populations from Central to South (and West) Asia. Neither is it likely that the adoption of a new language (which could well have taken place without extensive migrations of Indo-Iranian speakers) occurred at the high point of a civilisation noted for its conservatism in material culture.

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[15] One must note the obvious exception of literate civilisations, among which we may number the Harappan even though its script remains undeciphered and its language a matter of conjecture. For recent views on this subject see Fairservis 1992; Joshi and Parpola 1987.

[16] See Fairservis 1956. For (admittedly more tenuous) parallels see the ceramics of the sites of the Gomal Valley: Gumla II (Dani 1971) and Rehman Dheri I (Durrani 1986; Durrani, Ali and Erdosy 1991).

It is towards the end of the Integration Era, around 2000 B.C., that Central Asian traits intrude upon the cultural repertoire of the Indo-Iranian Borderlands, at the same time that certain ritual practices with clear Vedic and Avestan parallels arise in both areas. Such evidence is frequently quoted in support of hypothetical migrations and must be examined. Beginning, in reverse order, with rituals, we may note the occurrence of post-cremation urn burials in both northern and southern Baluchistan (Periano Ghundai II, Mughal Ghundai III, Dabar Kot, Mehi, Sutkagen-dor - Gupta 1972; Singh 1970). Cenotaphs in the South Cemetery of Mehrgarh were also inferred by Santoni (1984) to have represented cremations, as they were dug into extensive burnt deposits. By the mid-2nd millennium B.C. the practice can be observed in Swat (Stacul 1966, etc.), Dir (Dani 1967) and Zarif Karuna (Khan 1973); by the beginning of the first it has entered the Gaṅgā Valley, where the cremated remains were deposited in unlined pits instead of urns (at Chirand, Sonpur, Rajgir and Rajghat - Singh 1970). Since historical times, of course, cremation has been the predominant mode of disposal of the dead among the Hindus of the Subcontinent.

The practice of cremations is clearly preferred in the Ṛgveda, although not to the exclusion of inhumations. Its occurrence in the Indo-Iranian Borderlands, and its gradual spread East and South at the expense of the older custom must be viewed as significant. What is more, in several areas of the Borderlands it gives way to fractional burials, a custom associated with early Iranian speakers on the testimony of the Vendīdād (Boyce 1975,1: 109-129, 325-330). Apart from examples found at Nal in southern Baluchistan which Stacul (1975: 325) dates to 3000 B.C., the first occurrences may be dated to the early 2nd millennium B.C. at Khurab in southeastern Iran (Stein 1937) and at Burzahom in Kashmir (Stacul 1975: 326). They are followed by examples from Cemetery H in Harappa (Vats 1940; Wheeler 1947), from Periods V and, especially, VI of the Swat sequence (Stacul 1966), and from the final period at both Timargarha (Dani 1967) and Zarif Karuna (Khan 1973). It is in the last two areas, and to some extent in Swat, that fractional burials succeed cremations, and since all are presently inhabited by speakers of an Iranian tongue (Pashto), it is tempting to suggest a confirmation of the linguistic evidence. This urge is reinforced by the general NW-SE gradient of both cremations and fractional burials within the Subcontinent, suggesting an external origin for them.

Unfortunately, when seen in a wider perspective, the picture becomes blurred. Cremations may be well documented in South Asia, but they are presently rare in the Bronze Age of Central Asia. Only the cemeteries of southern Tajikistan show extensive use of this practice, especially at Tulkhar. Although Kohl (1984: 230) dates the burial complex to 1800-1500 B.C., the excavator prefers a 14th-13th century B.C. date for the cremations, and assigns the 13th-9th centuries B.C. to the pit burials (Mandel'shtam 1968: 99). The only other site to show possible evidence of cremations is Dashly-3, where cenotaphs were found; how-

ever, there is no mention of extensive burnt deposits in their vicinity, and they could have been used - for example - in fractional burial rites (as in Swat - Stacul 1966), or to accompany simple internments. If anything, on present evidence, cremations appear to have originated in the Indo-Iranian Borderlands and spread northwest (and southeast) thence, against the grain of postulated movements of Indo-Aryan speakers.

Unlike cremations, fractional burials are extensively documented in Central Asia not to mention the more distant region of the southern Urals: at Dashly-3 in southern Bactria by the beginning of the 2nd millennium B.C.,[17] at Zamanbaba in northern Bactria by 1800-1500 B.C. (Klejn 1984; Kohl 1984), and at the steppe cemetery of Sintashta a century or so later (Gening 1979). Several additional traits habitually associated with Indo-Iranian speakers are found within these complexes:

Fire worship: The recently excavated fortified structure of Togolok-21 has been interpreted as a temple for fire- and *soma/haoma*-rituals (Sarianidi 1991). Although the botanical samples have not yielded any traces of Ephedra, the species thought to be the principal ingredient in *soma/haoma* (Nyberg, this volume), the evidence for fire worship finds widespread support. At Dashly-3, for example, ash-pits raised on brick platforms were found in a circular temple (Sarianidi 1977). At Sintashta in the Urals, funeral pyres were placed on top of several burial mounds (Gening 1979). At Tulkhar, in southern Tajikistan, inhumations included circular fireplaces for women and rectangular ones for men, recalling, respectively, Vedic *gṛhapatyas* and *āhavanīyas* (Mandel'shtam 1968). As for cremations, next to the lower cavity of the funeral chamber, containing ashes and fragmentary bones, one at times finds bricks laid out in solar or swastika-patterns (Grave 63: Mandel'shtam 1968: 43 and figure 28; Grave 64: *Ibid*: 44 and figure 29). Similar arrangements were also revealed at the site of Babashov on the Amu Darya (*Ibid*: 96-97 and figure 35).

Fortifications: A diversity of fortified enclosures - circular (Dashly-3 (inner), as well as numerous sites in the vicinity of Sintashta in the southern Urals), square (Dashly-3 (outer), Sapalli-tepe), rectangular (Gonur, Togolok-21) and even polygonal (Togolok-1) - exists. The layouts have been likened at times to the *var* of Yima as related in the Avesta, perhaps most convinvingly in the case of Sapalli-tepe. Although the excavator acknowledges differences between the society pictured in the Avesta and the settlement at Sapalli (Askarov 1973: 137), he sees parallels in the evidence for craft specialisation, for residen-

[17] See Sarianidi 1977: 54: although the graves are often disturbed, being near the surface, several unmistakable examples of fractional burials can be detected. A similar observation was made by Stein (1937: 122) in the course of his explorations in Khurab. At least one example of a fractional burial is also indicated by the illustrator of the Djarkutan graveyard, in spite of the excavator's identification of it as an extended burial: Grave 55 (Askarov 1977: Plate XXXVII on p. 107).

tial organisation around patriarchal families living in communal houses, and for the leadership of a headman or *vīspati*. The palace at Dashly-3 is likewise compared (Parpola 1988: figures 29a-b) to Tantric *maṇḍalas*.

Horsemanship: In view of the importance of horse-drawn chariots in warfare, their burial alongside the dead at Sintashta is of great interest. The cemetey may be dated to the 17th-15th centuries B.C. (Gening 1979); it is thus contemporary with the first occurrence of horses (and camels) at Pirak in Baluchistan, and slightly predates the find of horse bones and horse furniture in graves in Swat and Dir.

Once again, however, fractional burials are at least as early in South Asia as in Central Asia, while fire altars on large platforms have been reported even from the Integration Era site of Kalibangan (Thapar 1973, Dhavalikar and Atre 1989). As for fortifications, none have as yet been reported from the Localisation Era of the Indus Valley Cultural Tradition (1900-1000 B.C.). Only the horse can be seen as a clear import into South Asia.

To sum up, several cultural traits with good Vedic and Avestan parallels have been found widely distributed between the southern Urals, Central Asia and the Indo-Iranian Borderlands. However, even allowing for the uncertain chronology of Central Asian sites, few of these traits show the northwest-southeast gradient in chronology predicted by our linguistic models. Rather, in the manner of certain "Aryan" traits within South Asia (Erdosy 1989), they originate in different places at different times and circulate widely, undoubtedly through the extensive interaction networks built up in the mid-3rd to early 2nd millennia B.C.. They thus form, not a set of attributes inherently associated with Indo-Iranian speakers, but, rather, a range of cultural practices from which emerging ethnic groups could choose the proper symbols of their distinct identities.[18] The crystallisation of ethnic identities must have taken considerable time and this may explain why there is seldom a clear separation of "Vedic"/"Indo-Aryan" and "Avestan"/"Iranian" traits; how, for example, the funerary urns of Cemetery-H could carry "Vedic" motifs on the one hand (Vats 1940), and be used in the "Iranian" practice of fractional burials on the other.[19]

It is impossible, thus, to regard the widespread distribution of certain beliefs and rituals, which came to be adopted by Indo-Iranian speakers, as evidence of population movements. Just such reasoning led B.G. Tilak to believe that the

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[18] Some of these ethnic groups may well have included the speakers of other language families; for example, the builders of the South Indian Megaliths, who frequently resorted to fractional burials themselves.

[19] Even at the Andronovo-Alakul cemetery of Sintashta which reflects principally Avestan practices (fractional burials, separation of the dead from the earth by means of stone or timber-lined graves, burials of dogs - Klejn 1984 after Gening 1979), certain Vedic elements (especially horse sacrifices and horse burials) may be detected. As for the complexes at Togolok-21 or Dashly-3, fire and *soma/haoma*-rituals can be assigned to either tradition.

"Aryans" originally inhabited the polar regions due to their knowledge of the fixed pole star and of polar days and nights, knowledge which was probably obtained from contact with Scythian tribes (Bongard-Levin 1980). There remain, nevertheless, impressive parallels in material culture between Central Asia and South Asia in the Late Bronze Age. Shared traits include: specific vessel shapes (bottles, footed goblets, dishes-on-stand, spouted bowls and vessels with applique animals on the rim); kidney-shaped vases of steatite; alabaster columns, discs and statues; shaft-hole axe/adzes; bronze mirrors with anthropomorphic handles; circular stamp seals with snake-motifs; and so on (Sarianidi 1990: 86-87, figures 14-15). What is more, these traits are all Central Asian in origin, frequently used as grave furniture (Pottier 1984) and, at least in some cases, found together in funerary deposits from cemeteries in the Borderlands that otherwise contain exclusively indigenous grave goods. Hiebert and Lamberg-Karlovsky (1992) justly assume that such examples do represent the burials of migrants from Bactria-Margiana. The so-called Grave L_i from Khurab, originally reported by Stein (1937) contains the best example of a Central Asian burial in an otherwise local cultural tradition; others come from Shahdad, Tepe Yahya, Quetta and the South Cemetery at Mehrgarh (Hiebert and Lamberg-Karlovsky 1992; Jarrige and Hasan 1988; Santoni 1984).

As must be evident from the foregoing, we are a long way from fully correlating the linguistic and the archaeological evidence. We may, however, note the existence of an extensive interaction network linking Central Asia and South Asia from the middle of the 3rd millennium B.C. onwards. It was initiated by the Harappans' demand for mineral resources such as lapis and tin, but maintained even after the end of the Integration Era on the Indus. Along the routes of this network circulated not only raw materials, but also a rich repertoire of artefacts frequently associated with the disposal of the dead, and rituals which came to be adopted by ethnic groups speaking Indo-Iranian languages. That some of this interaction entailed the movement of peoples has been shown by Hiebert and Lamberg-Karlovsky in their study of burials; consequently, the last centuries of the 3rd and the first centuries of the 2nd millennium B.C. represent the best archaeological dating for the entry of Indo-Aryan languages into the Borderlands of South Asia.

That the timing of the dispersal is earlier than generally expected should force the reevaluation of linguistic and historical evidence, thus showing the value of consulting the archaeological record. Indeed, if one accepts that the migrations of Indo-Aryan speakers into South Asia already entered the realm of mythology at the time of the Ṛgvedic hymns, and that the latter were composed from ca. the 15th century B.C. onwards, the chronology suggested by the archaeological evidence already makes perfect sense. The limited scale of migrations revealed by Hiebert and Lamberg-Karlovsky's 1992 study will probably receive a warmer welcome, especially by those linguists and historians who may be un-

easy with the image of conquering Aryan hordes. Most important, however, is the revelation that the Bactria-Margiana Archaeological Complex (the source of the Central Asian traits - and people - appearing in the Borderlands around the close of the 3rd millennium B.C.) represented a highly sophisticated civilisation; this, surely, rules out the popular view of the invasion of South Asia by a virile, yet barbaric race. Overall, it may be seen that the archaeological evidence not only provides broad confirmation for hypotheses drawn from solid linguistic data, but also helps to eliminate wilder speculation rooted in the cultural *milieu* of the 19th century pioneers of Vedic studies.

At the same time there is no confirmation of even a simplified, two-wave pattern of migrations which was derived from Burrow's study of the break-up of the Indo-Iranian language family. One may argue that the archaeological record is not sufficiently sensitive to detect population movements, but that is belied by the preceding discussion, as well as by the findings of biological anthropology (summed up in Chapter 2 of this volume), which reveal discontinuities in population in the fifth/fourth and first, but not in the third or second, millennia B.C.. The alternative explanation is that the linguistic model is too simplistic which, considering the limitations of the evidence, is hardly surprising. Unlike Indo-Aryan or Iranian languages, which survive as tangible entities, preceding stages of the Indo-Iranian family exist only as reconstructions - from cognates within the daughter languages and from occasional archaisms surviving as loan-words in other (principally Finno-Ugric) languages. It is difficult to compare a proto-language with the actually existing daughter languages from which it was pasted together, and, consequently, difficult to construct hypotheses on the social processes accompanying the change from one to the other, without lapsing into circular arguments. All we can do initially is draw up a family-tree which, as Baldi (1988) states, encapsulates the *result*, not the *process* of language change. Reliable means of identifying languages, or even linguistic boundaries, from material culture could, of course, lead to a testing of the accuracy of the tree but, as has been amply demonstrated, such means have thus far eluded us. On the other hand, the wealth of circumstantial evidence from archaeology, frequently contradicting assumptions that linguists have taken for granted, may perhaps be ploughed back into a renewed study of processes of word-retention/loss, which might throw new light on the social changes accompanying the evolution of Indo-Iranian languages. In general, recent archaeological research has provided broad support for the idea of language dispersal in Central and South Asia through migration on the one hand, and has questioned the utility of an unspecified two-wave model on the other.[20] The next step surely belongs to linguists;

[20] According to Witzel's analysis of the historical evidence contained in the Ṛgveda (in Chapter 14 of the present volume), several waves, probably involving only limited numbers of people, can be discerned.

until they provide more realistic models for archaeologists to test, little new will be revealed about the arrival of Indo-Aryan languages in South Asia. As regards the fortunes of Indo-Aryan languages within South Asia, however, it is archaeological research which is in immediate need of considerable refinement, a point to which we must now turn.

Old Indo-Aryan dialects in South Asia

Although the historical traditions preserved in the Vedas shed no light on the movement of Indo-Aryan languages into South Asia,[21] they are valuable in illustrating their spread within the Subcontinent. By the time of the Ṛgveda, itself composed long after the intial influx (Kuiper 1967), Indo-Aryan dialects (Emeneau 1966; Witzel 1989) were current in the Northwest. Indeed, judging by the fact that *āryas* and their principal adversaries, *dāsas*, spoke mutually intelligible tongues (Parpola 1988; Erdosy 1989), Indo-Aryan dialects must have been predominant in this region by 1500 B.C.. Later texts testify to the expansion of the Vedic universe to include the Indo-Gangetic Divide in later books of the Ṛgveda (datable to roughly 1000 B.C.), and the Gaṅgā Valley itself by the time of the later Brāhmaṇas and Upaniṣads (along with an awareness of southern regions, as in AB 7.18). Vague references to "uncouth"/"hostile" speech (*mṛdhra-vāc*)[22] in the Ṛgveda are replaced by the acknowledgement of regional characteristics (Witzel 1989) with the simultaneous veneration of northwestern forms of speech helping to pinpoint the direction of the spread. With the consciousness of linguistic differences comes the crystallisation of ethnic groups and the social order, observable in the Dharmaśāstras as well as in the earliest Buddhist tradition (Wagle 1966). The process culminates - by the 4th century B.C. at the latest - in the rise of territorially based political units commanding armies, ruled by bureaucracies, supporting a vigorous urban culture and fighting for political supremacy (Erdosy 1988).

In contrast with preceding periods we now have actual languages for study rather than just hypothetical protolanguages. Thanks to the oral transmission of early Indian literature, of course, the linguistic record is not without problems. Although the contents of the Ṛgveda, at least, have been preserved with exceptional accuracy, the language of even that text has undergone changes in the process of redaction (see Chapter 3 of this volume; Witzel 1989). Later, es-

[21] For an influential view to the contrary, however, consult Witzel's contributions to the present volume (in Chapters 4 and 14)

[22] Which in at least one instance is used to characterise an *ārya* tribe (the Pūrus - RV 7.18.13). See note 5.

pecially post-Vedic, texts are notorious for their long period of composition and multiple authorship, which renders them virtually useless as historical documents, even if they compensate for this deficiency in other ways. Nevertheless, there is ample evidence for the long-term evolution of Indo-Aryan languages and their interaction with other tongues, from which archaeologically testable hypotheses could be drawn.

I have already listed reasons for considering Indo-Aryan dialects to be external to South Asia, and spreading in a roughly northwest-southeast gradient within. Here I need only repeat the last of these, namely the evidence for the presence of other languages, now confined to central, eastern and southern India, in areas that came to be dominated by the speakers of Indo-Aryan. To begin with, a multitude of terms relating to agriculture cannot be traced to any of the known linguistic families of South Asia (Masica 1979), which suggests the presence of a now vanished language during the first transition to an agricultural economy on the Indo-Iranian Borderlands; whether this language may also have been used (perhaps along with several others) in the still undeciphered Harappan inscriptions remains a tantalising possibility, which would at least partly account for the enormous difficulties faced in the task of decipherment (Joshi and parpola 1987 etc.).

Of still greater interest is the evidence of structural borrowing from Dravidian by Indo-Aryan languages (dental-retroflex contrast, use of the particle *iti*, and use of multiple gerunds in a sentence concluded by a single finite verb), indicating extensive interaction between the respective speakers. As we shall discuss below, this topic has been extensively debated since the 19th century, and disagreements now centre principally around the timing and extent of the borrowings. That Dravidian languages once extended well beyond the limits of their present distribution, is also no longer disputed, principally for the following reasons (outlined in detail in Southworth 1990): 1) the survival of Dravidian languages as islands in a sea of Iranian and Indo-Aryan speakers: most notably, Brahui in Baluchistan and Kurux and Malto in Central India; 2) the tentative identification of a postulated proto-Elamo-Dravidian linguistic family linking southwestern Iran and the lower Indus Valley by the 3rd millennium B.C. (see McAlpin 1981); 3) Dravidian influence on place-names in areas such as Maharashtra, which are presently inhabited by Indo-Aryan speakers; and 4) the permeation of certain kinship structures by Dravidian principles in spite of the Indo-Aryan labels used in description. Indeed, following the second point, we may even surmise that the Dravidian languages (like their Indo-Aryan counterparts) themselves originated well outside the area where they are presently concentrated. This hypothesis was advanced in the following synthesis of archaeological and linguistic evidence by Fairservis and Southworth (1989), summarising the linguistic (pre-)history of South Asia which, for its final stages, agrees well with the historical information just presented:

<table>
<tr><th>Years B.C.</th><th>Indo-Iranian Borderlands</th><th>Sindh</th><th>Panjab</th><th>Rajasthan</th><th>Gujarat</th><th>Gaṅgā Valley</th><th>Deccan</th><th>South India</th></tr>
<tr><td>7000 - 4000</td><td><Agro-pastoral.></td><td colspan="7"><<<<<<<<<<<<<<<<<<<<<<<<<<< Hunter-Gatherers >>>>>>>>>>>>>>>>>>>>>>>>>>></td></tr>
<tr><td></td><td><<< **PED >>></td><td colspan="7"><<<<<<<<<<<<<<<<<<<<< Unidentified linguistic substratum >>>>>>>>>>>>>>>>>>>>></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td colspan="2"><<<<<< Muṇḍa >>>>>></td><td></td></tr>
<tr><td>4000 - 3000</td><td colspan="3"><<<<<<<<< Village life >>>>>>>>></td><td colspan="5"><<<<<<<<<<<<<<<<<<<<< Hunter-Gatherers >>>>>>>>>>>>>>>>></td></tr>
<tr><td></td><td colspan="3"><<<<<<<<<<<< *PED >>>>>>>>>>></td><td colspan="5"><<<<<<<<<<<<<<<<<<< Unidentified language >>>>>>>>>>>>>>>></td></tr>
<tr><td></td><td colspan="3"><<<< Unidentified language? >>>></td><td></td><td></td><td colspan="2"><<<<<< Muṇḍa >>>>>></td><td></td></tr>
<tr><td>3000 - 2300</td><td colspan="4"><<<<<<<<<<< Complex Village life >>>>>>>>>>>></td><td colspan="4"><<<<<<<<<<<<<<<< Hunter-Gatherers >>>>>>>>>>>>></td></tr>
<tr><td></td><td colspan="4"><<<<<<<<<<<<<<<<*PrD-Ø >>>>>>>>>>>>>>>></td><td colspan="4"><<<<<<<<<<<<< Unidentified language >>>>>>>>>>>>></td></tr>
<tr><td></td><td colspan="3"><<<< Unidentified language? >>>></td><td></td><td></td><td colspan="2"><<<<<< Muṇḍa >>>>>></td><td></td></tr>
<tr><td>2300 - 1900</td><td colspan="5"><<<<<<<<<<<<<<<<<<<< Urbanism >>>>>>>>>>>>>>>>>>>></td><td><Hunter-Gatherers></td><td colspan="2"><< Agriculturalists >></td></tr>
<tr><td></td><td colspan="5"><<<<<<<<<<<<<<<<<<<< *PrD-1-2 >>>>>>>>>>>>>>>>>>></td><td colspan="3"><<<<<<<<<<<<<< *PrD-3 >>>>>>>>>>>>></td></tr>
<tr><td></td><td colspan="3"><<<< Unidentified language? >>>></td><td></td><td></td><td colspan="2"><<<<<< Muṇḍa >>>>>></td><td></td></tr>
<tr><td></td><td colspan="2"><< Indo-Aryan? >></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>1900 - 300</td><td colspan="2"><< Systems collapse >></td><td colspan="4"><<<<<< Systems collapse & (re)urbanisation >>>>></td><td colspan="2"><< Advanced agriculture >></td></tr>
<tr><td></td><td colspan="6"><<<<<<<<<<<<<<<<<<<<<<<<<<<< Indo-Aryan >>>>>>>>>>>>>>>>>>>>>>>></td><td colspan="2"><<<<<< Dravidian >>>>>></td></tr>
<tr><td></td><td colspan="2"><< Dravidian >></td><td></td><td></td><td></td><td colspan="2"><<<<<< Muṇḍa >>>>>></td><td></td></tr>
</table>

Although the absolute chronology of this scheme remains open to question, the general direction and relative sequence of the spread of Dravidian and Indo-Aryan languages is well supported by the evidence which includes the vast corpus of Vedic literature. Setting aside, for the moment, the possible presence of an unidentifiable language in the Indus Valley, our immediate problem is to pinpoint the process which resulted in the replacement of Dravidian with Indo-Aryan languages over a wide area. In this regard, I have already stressed that the interaction evident in structural borrowing argues against simplistic explanations such as the extermination or expulsion of a "native" population by "invaders". A demography-subsistence model of the kind advocated by Renfrew (1987) for the spread of Indo-European languages in Europe is also out of the question.[23] Although the later Vedic sources make reference to migrations (see note 7, above), these frequently involve only members of the priestly class. Disregarding the undoubtedly fictitious account contained in ŚB 1.4.1.14-17[24] they offer no examples of large-scale colonisation of uninhabied tracts, only localised movements and battles. While several new ethnic groups are mentioned, few (e.g. the Pañcālas) are treated as migrants into the area they occupied.

The most plausible explanation for the presence of Dravidian structural features in Old Indo-Aryan, in fact, assumes that the majority of OIA speakers had Dravidian as their first language, which they shed after a period of bilingualism. Such would particularly be the case for the emergence of retroflex sounds, which must have resulted from native speakers of Dravidian interpreting Indo-Aryan sounds in terms of their own phonemic system. This idea, expressed most forcefully by Kuiper and Emeneau, was first advanced by Caldwell in the 19th century (Kuiper 1967). Although the opposition to it has just as venerable a history (*Ibid*) and has been led by such distinguished scholars as Bühler, Bloch and Renou, the principal area of disagreement today concerns the timing of the switch from Dravidian to Indo-Aryan languages, not its actual occurrence.[25] Assumptions of a Proto-Elamo-Dravidian language family (McAlpin 1981) would argue for early contact, possibly already on the Iranian plateau; at the

[23] It may, however, be used profitably to explain the interaction of Indo-Aryan and Muṇḍa languages, where the latter appear to have been spoken by economically backward social groups who were gradually pushed to peripheral areas where they are found today.

[24] Excavations at Chirand in the very territory of Videha, as well as at several sites in West Bengal, have revealed a flourishing agricultural economy well into the 2nd millennium B.C. (Sinha 1974; Agrawal 1982). Likewise, Sharma (et al. 1980) has demonstrated that the earliest settlers of the central Gaṅgā Valley came not from the West but from the Mesolithic and Neolithic settlements of the Vindhyan hills.

[25] Later Vedic literature itself offers examples of the incomprehensible speech of the Mlecchas (ŚB 3.2.1.23-4), which show that it is the linguistic efforts of certain Indo-Aryan speakers that are being ridiculed, not non-Indo-Aryan tongues. The difficulties of the Vrātyas in speaking the "language of the initiated" also hint at the recent adoption of an Indo-Aryan language by certain (clearly despised) social groups.

other end of the spectrum as already noted, Deshpande (1979, Chapter 3 of this volume) would place the interaction in the period of the transmission of Vedic literature, and, geographically, in the northeastern regions of the Subcontinent.

The factors which could have induced Dravidian speakers to switch to Indo-Aryan must be considered next. Since language is closely bound with ethnic identity, it will not be readily abandoned. One glance at Barth's analysis of ethnic boundary maintenance on the Northwest Frontier (Barth 1969b, partially summarised by Mallory 1989: 260-261) is sufficient to show a complex interplay of factors, arguing against uncritical adoption of an "elite dominance" model (Renfrew 1987; cf. Chapter 4 of this volume), which has generally been favoured. In particular, it seems that acephalous ethnic groups with demanding codes of behaviour (such as the Pathan tribes) find it difficult (as well as frequently undesirable) to absorb outsiders into their fold; at the same time their members will readily assimilate in alien surroundings, where the price of social success (submission to authority) is judged to be excessive by their traditional value system. Hierarchically organised ethnic groups (such as Baluchis and Panjabis), on the other hand, are capable of absorbing large numbers of aliens through systems of clientage, which imply no dishonour to those entering the fold. Indeed, in fertile regions the engagement of new clients can be turned to great profit, and would be actively pursued. Barth also observes that frequent interaction will generally lead to linguistic and ethnic assimilation, at times even against the wishes of a dominant ethnic group (as in the valleys of Swāt).

In a South Asian context, it must be remembered that the adoption of Indo-Aryan languages was combined with the adoption of an ideology couched in those languages; indeed the organising principles of society and religion extended even beyond the confines of Indo-Aryan speakers. As language would not be abandoned lightly, one must assume that the advantages offered by the adoption of a new ideology were vital in inducing the switch. The likelihood of this increases if one considers that Indo-Aryan languages first emerged in the Borderlands during the dissolution of an urban civilisation. Such a sudden collapse as seems to have characterised the Localisation Era - abandonement of urban centres, large-scale relocation of population due to the drying up of the Sarasvatī River, loss of foreign contacts, decline in arts and crafts - could not but have a negative impact on the ideology of the Harappans. Although the evidence is limited, it has been suggested that the limited number and poor condition of stone images has resulted from their deliberate destruction (Ardeleanu-Jansen 1985). The writing of the Harappans was another casualty of this systems collapse.

The actual advantages offered by the ideology of the Vedas have been discussed elsewhere (Erdosy in press). Above all, the *ārya* social system was able to justify the incorporation of social groups in a ranking system with reference to their cultural and ritual practices. Unlike the "lawless" *dāsas* and *dasyus*, the *āryas* had the means of assigning rank to social groups which, even if dependent

on power relations, could be expressed through cultural differences. Since the second millennium B.C. saw not only the collapse but also the gradual rebuilding of complex societies, in which territiorial expansion took an increasing part, a social system that could absorb newcomers in increasingly poly-ethnic contexts provided significant adaptive advantage for the language - in this case Old Indo-Aryan - in which it was expressed. In time, that language would become the property not only of the ruling elite but of the general populace as well; not surprisingly, in light of Barth's analysis of ethnic processes in Swāt which has just been referred to (Barth 1969b).

The hypothesis is not without problems: it ignores the possibility that speakers of several languages, not just Dravidian, could have adopted an Indo-Aryan tongue; it fails to explain why the process of linguistic conversion was not carried into South India where Dravidian speakers continue to predominate, and so on. It is offered here rather as an example of the process of reasoning one must follow, than as a specific solution to our puzzle, even if it answers several important questions. It certainly demonstrates that the linguistic history of South Asia is documented to a degree that allows the drawing of hypotheses about social changes which may then be tested against the archaeological record.

However, while in the case of the break-up of the Indo-Iranian language family it was linguistics which failed to come up with realistic explanations, here it is archaeology which lags behind. To be fair, it was archaeology which revealed the disintegration of one cultural tradition, and it has also supported the literary evidence for the emergence of its successor. I have already alluded to traces of an ideological crisis such as the destruction of stone images and the disappearance of the Harappan script.[26] Settlement patterns mirror the collapse of urbanism, the shift of population to the eastern Punjab upon the drying up of the Sarasvatī river-system,[27] the gradual reemergence of complex societies and trading networks, and so on (Mughal 1984; Shaffer 1986, 1993; Kenoyer in Chapter 10 of this volume, Erdosy in press). However, beyond the evidence of settlement patterns little information has been unearthed regarding the cultural dynamics of the late-2nd/early-1st millennia B.C.. Much effort is still expended on the identification of "Aryans" in material culture - be it through Copper Hoards, Painted Grey Ware, or even the Indus script - as if "Aryans" actually existed, or the archaeological record were capable of revealing languages and

[26] In spite of efforts (e.g. Dani 1963), no convincing links can be demonstrated between the writing of the Harappans and the protohistoric Brahmi script.

[27] This may account for frequent references to battles and migrations in the Ṛgveda (at times clearly due to population pressure on shrinking resources as in RV 6.47.21) and for the expanded horizons of its later books (cf. RV 10.75). It is the only documented instance of significant population shift; after ca. 1000 B.C., little movement can be discerned.

races.[28] Until large-scale exposure of the lower levels of protohistoric sites is undertaken, few questions regarding the emergence of complex societies will be answered, and there will continue to be no reasons why linguists should look to archaeology for answers to their problems.

Conclusions

As stated at the outset, archaeologists and linguists were brought together by the false expectation that an invasion of Indo-Aryan speaking races could explain both the transition from the Indus to the Indo-Gangetic Cultural Tradition, and the present linguistic map of South Asia, whose northern half is dominated by Indo-Aryan speakers. It must be increasingly evident that this traditional model is inadequate - it is not supported either by the archaeological evidence, or even - on closer inspection - by the historical traditions contained in Vedic literature. Indeed, as Shaffer (1984) argued, the model of "Aryan invasions" is firmly rooted in 19th century attitudes about the civilising mission of European powers, combined with a desire to find a non-Semitic past for themselves. That it survived for so long may be attributed to its utility for both imperialists and nationalists in South Asia: to the former it provided historical justification for their mission; to the latter it afforded the prestige of common descent with the very power that ruled over them.

That said, there are compelling reasons for maintaining contacts between archaeology and linguistics. Both disciplines have the power to delve into the past, illuminating different, but related facets, of cultural evolution and it has been the object of this paper to demonstrate that there are ways in which information from one can be utilised by practitioners of the other. It only remains to distil some principles of collaboration, both from the preceding discussion and from other, recent, attempts at combining the research of the two disciplines.

Given the degree to which (mis)information is already shared, the virtual absence of theoretical discussion is particularly serious. Apart from Renfrew's controversial account of Indo-European origins (Renfrew 1987, 1988), and its fallout (particularly on the pages of *Current Anthropology* 29.3: 437ff.), a single collection of papers in *World Archaeology* (Volume 8,1 (1976)) is devoted explicitly to theoretical and methodological issues, with additional discussion (e.g. Bright 1986; Clarke 1978; Ehret 1988; Renfrew 1989, 1990) scattered widely through the literature. The archaeology of the Indo-Europeans, in particular, is bedevilled by reliance on an outmoded view of archaeological cultures,

[28] To those who still hold that the distribution of certain traits is indicative of migrations, Chakrabarti has long ago (1968) pointed out that most of the traits (subsistence patterns in particular) of the "Painted Grey Ware people" were eastern in origin.

which readily ascribes linguistic attributes to recurring assemblages of artefacts - even Mallory's comprehensive summary (Mallory 1989), however excellent in many respects, suffers from this attitude. Given the quantity of linguistic as well as archaeological research lavished on the American Southwest, California and Mesoamerica, attempts to combine the datasets in these areas have been more numerous, although even here much discussion is confined to an empirical level.

In one of the more thoughtful essays on the subject, David Philipson (1976: 66) asserted that "it is not unreasonable to suspect that some of the major demographical developments which are indicated by archaeology will be reflected to some degree or another in present patterns of language distribution". Conversely, evidence for the borrowing of words to describe material culture could be tested against the archaeological record, on the assumption that the description followed in the trail of the actual object from one social group to another. Based on these principles Philipson equates the evolution and spread of the Bantu languages with the spread of iron into Southern Africa, since the linguistic and archaeological evidence exhibit similar patterns (especially the rapid, and relatively recent spread of Eastern Bantu languages on the one hand, and the equally rapid spread of a fairly homogeneous Late Iron Age asssemblage on the other). The approach is sophisticated in that it compares independently ana-lysed patterns, instead of merely matching discrete traits. However, even Philipson's thesis is based on two questionable assumptions: 1) that material culture and language vary within the same social subsets, which is, at best, a hypothesis awaiting confirmation; and 2) that a recurring assemblage of artefacts (as defined by Childe in *The Danube in Prehistory* (Childe 1929)) is a valid analytical unit, which must be firmly rejected (Shennan 1978). In consequence, comparisons of the patterns of change are as inconclusive as the tracing of individual loanwords or items of material culture. Nor is there any reason to assume that taxonomic distance between 'cultures' or even techno-complexes is in any way correlated with the classification of various dialects, languages or even language families (cf. Bright 1986 for a more extended critique).

This brings us to the work of Colin Renfrew (1987 etc.). Although his specific solution to the Indo-European problem has been rejected on linguistic as well as archaeological grounds, his theoretical approach is sound in at least one important aspect. To wit, he stresses the need to replace the old equation:

language = ethnos or 'people' = culture

with the formula:

language change <--> socio-economic change <--> change in material culture.

He surmises correctly that although archaeologists cannot dig up languages, the study of socio-economic changes - the likely causes of language change - is well

is well within their competence. Although most of his models continue to assume a close correlation between language changes and population movements, this may be the result of dealing with protolanguages, where the number of archaeologically testable hypotheses remains limited. Nevertheless, it would have been desirable to explore the possibilities of language change within a stable population in greater detail. One need only refer to Barth's analysis of the Pathan-Baluchi ethnic boundary (see above), or the role of bilingualism in the emergence of Indo-Aryan languages in northern India, to see the promise of this approach. In a similar vein, Flannery and Marcus (1983) have advanced some useful hypotheses regarding the correlation between population density and linguistic divergence, even if they have only begun the work of correlating cultural, demographic, and linguistic changes.

The discussion of the spread of Indo-Iranian languages to South Asia, and of their dispersal within the Subcontinent, have followed the spirit of this approach. The cultural dynamics evident in both languages and the archaeological record were analysed independently at first; this was followed by a comparison of patterns of change to establish possible correlations. No attempt was made to identify any particular linguistic or ethnic groups in the archaeological record; rather, past attempts at equating "Aryans" with either individual material culture traits, or - as has become fashionable - with certain religious and burial rites, have been critically reviewed.

As a result of the investigation, some support was found in the archaeological record for small-scale migrations from Central to South Asia in the late 3rd/early 2nd millennia B.C., but any support for Burrow's 2-wave model (Burrow 1973) was firmly ruled out. The idea of invasions by a barbaric race enjoying technological and military superiority was - I hope - fatally undermined, and the chronology of movement into South Asia has been extended by several centuries, beyond what has generally been assumed from a misreading of the Ṛgveda as an account of foreign invasions. Linguists were, moreover, urged to construct more realistic models of social change to account for linguistic changes, which could be further tested against the archaeological record.

The situation regarding the spread of Indo-Aryan languages within South Asia was somewhat different. There were compelling reasons - particularly, substratum influences on Old Indo Aryan - to believe that the majority of early Old Indo Aryan-speakers had a Dravidian mother tongue which they gradually abandoned. No direct proof of this existed in the archaeological record for the oft-recited reason that no reliable methods exist for identifying languages in material culture. It has, however, been possible to connect the acquisition of a new language with the adoption of a new ideology in post-Harappan times, and thus to create a plausible cultural background, which could be tested against the archaeological evidence. Since the latter remains notoriously sketchy for the 2nd millennium B.C., it would be difficult at present to claim that the initial hypothe-

sis explaining language change was correct. However, as was pointed out in the preceding discussion, as well as in the introduction, the aim was to develop a sound procedure for the testing of linguistic hypotheses against archaeological data, not to solve the "Aryan problem" at one stroke.

To conclude, even if languages are not recoverable from prehistoric contexts, the social circumstances accompanying linguistic changes may be so examined. Thanks to recent efforts at identifying ethnicity in material culture (Hodder 1979; Shennan 1989; Wiessner 1983, 1984, 1985) it may soon possible to replace an outdated notion of "culture" (Shennan 1978) with a more realistic approximation of social units and, given the close association between language and ethnic identity, new avenues of collaboration between archaeology and linguistics may open up.

It may, finally, be noted that in general the procedures advocate in this paper test hypotheses derived from linguistic evidence against archaeological data. In theory, the procedure could easily be reversed, so that the archaeological data become the initial target of study. However, given that only a limited number of specific theories exist for explaining the development and territorial spread of languages, as opposed to an almost limitless spectrum of generalised hypotheses for cultural change, such an approach is unlikely to be fruitful. But before archaeologists conclude that this relegates their discipline to the confirmation of linguistic hypotheses they should remember that their data will provide much information not reconstructible from the linguistic evidence, especially in a prehistoric context. Although linguists are in a better position to decide *how* Indo-Iranian languages developed and spread, only archaeologists can tell them *why* they have done so at any given point in space and time. Even in the case of Indo-Aryan languages directly documented in literature (as opposed to the hypothetical reconstructions of proto-languages), archaeology will play in a crucial role in reconstructing the cultural setting in which they evolved and replaced the forms of speech previously dominant in South Asia.

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Kenneth A. R. Kennedy

2. Have Aryans been identified in the prehistoric skeletal record from South Asia? Biological anthropology and concepts of ancient races

Introduction

In the course of my investigations of the skeletal biology of the ancient and modern peoples of South Asia, I am frequently asked where skeletons of Vedic Aryans have been discovered and what their physical characteristics might be. My interrogators include linguists, historians, archaeologists, students, cocktail party hostesses, and even other physical anthropologists, all of whom assume the existence of a recognisable phenotypic pattern marking the prehistoric conveyors of Indo-Aryan languages to the subcontinent and their lineal descendants with the caste system today. With embarrassment I am forced to concede in these situations that I have neither knowingly exhumed an Aryan nor, having done so unwittingly, been able to identify the skeleton as such. At which point the subject is either tactfully dropped or my interlocutor reveals my appalling state of ignorance by informing me that the purest Aryans have turned up, indeed. This is usually at some locality in Kashmir, the Iranian plateau, or from street construction excavations around Flora Fountain in Bombay. In short, my experience has been that Aryans, dead or alive, fall under the rubric of "Watch out! Go slow!", even in the tranquil setting of my osteology laboratory, for there is always the possibility that a skeleton will declare its Aryan lineage, therewith dismissing many years of scepticism about the Aryan presence as a biological phenomenon.

By which physical characteristics might Aryans be identified? How have answers to this question emerged? These are the two principal issues which this paper addresses. Recent studies of the ancient human skeletal remains from Harappa and other prehistoric mortuary series from the northwestern sector of the South Asian Subcontinent - the presumed locus of early Aryan activity - may be relevant to these issues, and will thus be given particular attention in addition to a thorough historical survey of past research.

Vedic Sources

Unfortunately, the Vedic accounts do not include detailed morphometric descriptions of their authors, but the non-Aryan peoples who were their neighbours - the *dāsas, dasyus,* and *asuras* - are described in unflattering terms regarding their physical appearance. Not only did they sport anasal faces, dark skins and short statures but they practiced revolting religious rites, mumbled a barbarous tongue and engaged in unacceptable behaviour. If these things offended the chanters of the Vedic hymns, perhaps it was because they themselves possessed elongated and prominent noses, fair complexions and tall statures. Indeed, the existence of a group of brahmans with white skins and red or yellow hair is noted by the second century B.C. grammarian in his Mahābhāśya which echoes an account found in the earlier records of the Ṛgveda and the Gopatha Brāhmaṇa. In the Purāṇas (Bhagavata Purāṇa 4.14.44) culturally unassimilated populations living along the margins of Brāhmaṇical influence are called *niṣāda.* They are described as having skin pigmentation "black like crow, very low stature, short armed, having high cheek bones, low-topped nose, red eyes, and copper-coloured hair" (Chanda 1916: 5). Thus is good birth and ritual purity associated with the colour white (*śukla*) while lower origins and unorthodox practices are associated with the colour black (*kṛṣṇa*) in Vedic and Brāhmaṇical sources.

The term *anas* (RV 5.29.10) may have more than one meaning with respect to the nasal architecture of non-Aryan peoples. In one sense it means "nose-less" (*a-nas*) which might indicate broad-nosed (platyrrhinic) nasal form. This is not a predominant feature of living populations or prehistoric skeletal remains in northwestern India and Pakistan, hence an alternate meaning must be considered. This is *an-as*, or "without a mouth", conceivably a reference to an incomprehensible language. *Dāsa* indicates "barbarian" while *dasyu* is an uncomplimentary expression for ugliness and subhuman appearance. Such pejorative explanations may not be indicators of physical features so much as references to communities outside the sphere of Aryan culture.

Western Linguistic and Historical Tradition

Although the Vedic tradition implies striking physical differences between Aryans and their neighbours, the search for the skeletal remains of Vedic Aryans has its source in the western intellectual tradition of the late eighteenth century, following acceptance of the discovery by Sir William Jones in 1786 (Jones 1789) that Sanskrit has linguistic affinities to Greek, Latin, Persian and some modern European languages. Citing linguistic, historical, mythological and scriptural sources, European scholars created a new genealogy and cradle of racial origins in Asia to replace the Judeo-Christian account in *Genesis.* A western version of

the Aryan concept gained popularity in Europe in the 19th century because of its scientifically oriented approach and appeal to nationalistic sentiments.

It is in Germany that the European Aryan myth had its beginnings. Within a pedigree which included Nordic gods and human Goths, Lombards, Angles, Saxons and Burgundians, German scholars ranked highest their affiliation with the Franks. It was through Frankish genealogy that earlier lineages were traced to the Trojans and ultimately to Noah's son, Japheth, who, some believed, had settled in Germany after the Deluge. Hildegard of Bingen claimed at the end of the 12th century that Adam and Eve spoke German. It was around this pivot of linguistic affinity that many notions of Germanic identity revolved, especially during and after the 15th century. German humanists argued for German autochthony, tracing their descent from powerful rulers of earlier times who manifested their might in regions far distant from the Rhine. From these beliefs in linguistic and historical fables of widespread German political preeminence in antiquity was born the nationalism that characterised the Reformation. In that religious and political movement, Germans broke away from their mediaeval tradition of accepting a cultural debt to Latin antiquity, and the reformers came to consider themselves as self-made conquerors with historical roots inherent within their own cultural tradition of a non-Semitic, non-Latin, chosen people destined to rule the world. An original language (*Ursprache*) was the hallmark of the original race (*Urvolk*) in the minds of those nationalistic Germans in the period of the Enlightenment and early years of Romanticism.

In 1805, Friedrich Schlegel, a German statesman and novelist, began a series of lectures on world history at the University of Cologne. He had acquired some knowledge of Sanskrit and a familiarity with the works of Jones. Schlegel's lectures were the basis of his *Essay on the Language and Wisdom of the Indians* published in 1808. His lectures and book contain two themes: the antiquity and splendour of Sanskrit, and the thesis that Sanskrit-speaking hordes commanded by warriors or priests left their Himalayan homeland to bring civilisation to India, Egypt, and Europe. The influence of this mass migration was felt as far north as Scandinavia, thus the primitive Germanic people were drawn into this *Völkerwanderung* of prehistory, becoming amalgamated in the process into a colony of this mysteriously driven race. Schlegel made clear an ethnic concept merely implied by earlier writers of linguistic theory, namely that language, race, and culture were correlated. Converts to Schlegel's view of history added details and attempted to combine his ideas with the Hebrew tradition of racial and linguistic origins. One writer (Creuzer 1810-1812) proposed in 1810 that Judaism was a primitive form of Brāhmaṇism and that Abraham was no less than Brahma himself! Another contributor to this genre (Kanne 1808) suggested that Joseph was Ganesha, the Indian elephant-headed god.

In 1819 Schlegel used the term *Aryan* to identify the Indian bearers of culture to the west, a word borrowed from Herodotus and already familiar in de-

signating Medes and Persians. He liked this choice for the reason that he associated the root *Ari* with the German *Ehre* ("honour"), but his racial term had to compete with names favoured by other writers. Julius von Klaproth, Orientalist and traveller to Asia, coined the term *Indo-Germans* in 1823, by which time the English had accepted Thomas Young's *Indo-European* nomen when it was proposed by this Egyptologist in 1816. It was the latter term that was used by the Sanskritist and comparative philologist Franz Bopp in 1833.

The Aryan myth, as proposed by Schlegel, received its most enthusiastic support from the German philosopher George Wilhelm Friedrich Hegel (1817), who compared Jones' linguistic discovery of Sanskrit affinities to the finding of a new continent. Hegel pronounced as fact the phenomenon of the migration of an Aryan people to the west, asserting that the proof rested in linguistics. His theme was taken up by Christian Lassen (1845), the Norwegian Sanskritist who introduced the study of Indian archaeology to Germany. Lassen's view was that the ancient Aryans, and the high-caste people of modern India, shared a white complexion, hence were physically distinguishable from non-Aryans. These and other writers of an Aryan race concept based upon language, biology, myth and ideologies of the Germanic right of conquest were the instruments whereby the esoteric deliberations of philosophers and antiquarians entered the arena of public awareness. But a particular responsibility for this transmission of ideas rests with the German lexicographer Jacob Grimm who is equally well known for the compilation of fairy tales (*Hausmärchen*) with his brother Wilhelm. When not regaling the world with the adventures of Hansel and Gretel, Rumpelstiltskin, Snow White and Tom Thumb, brother Jacob informed us in his *History of the German Language*, which appeared in 1848, that:

> All the peoples of Europe and, to begin with, those which were originally related and which gained supremacy at the cost of many wanderings and dangers, emigrated from Asia in the remote past. They were propelled from East to West by an irresistible instinct, the real cause of which is unknown to us... The vocation and courage of those people which were originally related and destined to rise to such heights, is shown by the fact that European history is almost entirely made by them. (Grimm 1848: 113-122)

The Aryan concept took hold in countries outside Germany. Linguistics became the criterion of the racial classification of mankind, as racial typology came into use by early anthropologists and historians. French translations appeared in 1803 of *Asiatick Researches* and in 1837 of Schlegel's *Essay on the Language and Wisdom of the Indians*. New propagandists of the Aryan myth arose, among whom Joseph Ernest Renan of France and the Anglo-German Friedrich Max Müller were the leading figures in the latter half of the nineteenth century. Renan used the terms "Semite" (or Jewish) race and "Aryan" (or Indo-Germanic) race in his controversial book *Life of Jesus* which appeared in 1863, and set off a run of imitations, all arguing that the origin of the Bible is to be

found in India. The anti-Semitism which surrounded these works did not appear to the same extent among the English audiences Friedrich Max Müller addressed at the University of Oxford and at the Royal Institute of London. Nor did his lectures on Aryanism lead to upsets of political or ideological import, even at a time when Darwinian evolution was gaining acceptance over strict interpretations of *Genesis* and the Mosaic chronology.

However, the English were never enthusiastic about the notion that their biological and cultural origins lay amongst the natives they ruled in India, and few Englishmen read Schlegel's works on the subject. Whatever contributions the Aryans may have made in the arts and sciences, the origins of religion were firmly established with the Judaic tradition. Even the agnostic evolutionist Thomas Henry Huxley (1891) defended the ethical teachings of the Bible against those foreigners who would replace it with their doctrine of an Aryan migration. But Max Müller's (1861) influence as a philologist and an Orientalist gave considerable weight to the opinion that Aryan meant biological race as well as linguistic entity, and that in ancient times "the first ancestors of the Indians, the Persians, the Greeks, the Romans, the Slavs, the Celts and the Germans were living together within the same enclosures, nay under the same roof." This idea is contained in his book, *History of Ancient Sanskrit Literature*, which appeared in 1859. The proposed date of 1500 B.C. for the Aryan invasion of India gained acceptance by later historians and archaeologists.

By 1872 Max Müller (1887, 1890, 1893) recanted that he had supported any idea of a link between biological race and language. Even in 1888 he was lecturing that any talk of an Aryan race, Aryan blood, Aryan hair and Aryan bones and skulls was as ludicrous as talk of a dolichocephalic dictionary or brachycephalic grammar (Max Müller 1888: 116-121). The great Orientalist made the point that the classification of skulls, hair and blood should be left to those anthropologists prepared to make classifications on the basis of anatomy. This repudiation of his earlier thesis is a mark of his courage and professional integrity, but his warnings came too late. His disciples continued to perpetuate the Aryan myth, which culminated as a political doctrine and racist manifesto on the continent after the Franco-Prussian War of 1870-71. While rejecting a linkage of language with anatomy, Max Müller himself never abandoned his theory that an Aryan people once migrated as a great swarm from a central homeland towards northwestern Europe and into the Indian subcontinent.

By the time of the Franco-Prussian War, the Aryan concept assumed garish nationalistic colours among Germans who read the writings of the French aristocrat Joseph Arthur, Comte de Gobineau. His four volume *Essai sur l'inégalité des races humaines*, which appeared between 1853 and 1855, was introduced to the German public by Richard Wagner who was an active writer of political tracts as well as the composer of some of the most glorious music the world has ever heard. Wagner's son-in-law, Houston Stewart Chamberlain, was

an Englishman who molded Gobineau's concepts into the doctrine of Nordic-Teutonic racial supremacy. Chamberlain's *Foundations of the Nineteenth Century* appeared in 1899, and many earlier statements by other authors concerning Aryan superiority were continued by Chamberlain who preferred the term *Teutons* or *Teutonic race*. Thus both Gobineau and Chamberlain transformed the Aryan concept, which had its humble origins in philological research conducted by Jones in Calcutta at the end of the eighteenth century, into the political and racist doctrines of Adolf Hitler's Third Reich.

Western linguists and historians focused their attention upon how Aryan people migrated to the west from their mysterious Asian homeland, but their antiquity and passage to India demanded explanation, as well. The Vedic accounts do not describe in explicit terms the place or nature of the Aryan homeland. The question that an invasion is recorded in Vedic literature has been debated by both Western and Indian scholars.

The idea that the Aryans came to India in two waves of migration was formulated by the Orientalist A.F.R. Hoernle (1880) in a linguistic study of Hindi. This thesis was supported by George Grierson, Director of the Linguistic Survey of India, the two scholars agreeing that the first invasion took place in the Panjab via the Kabul valley. The second invasion occurred later, in a drier climatic period and with greater speed as the new Aryans reached the Gaṅgā and Yamunā in a serious of hordes, took wives of non-Aryan stock and penetrated the *madhyadeśa* (the "midlands"). Brāhmaṇic culture developed here, and later the hymns of the Ṛgveda were composed as Sanskrit developed as the classical language of Aryan culture, "differing from Vedic as much as did Attic from Homeric speech" (Barnett 1913: 9). Hoernle identified two early Aryan language groups with the two waves of invaders: *Māgadhī*, the tongue of the first group, and *Śaurasenī*, of the second. These varieties of Indo-European language extended into the Gangetic plain, but *Māgadhī* was displaced to the east and south by *Śaurasenī*, and it was from this second linguistic wave that Vedic literature took its origin. What Grierson (1907) added to Hoernle's theory was a precise geographical connotation of the spread of the outer band of Aryans to Panjab, Sind, Rajputana, Oudh, Gujarat and Bihar.

Archaeology

The two-wave theory of Aryan migrations to India proposed by Hoernle and Grierson was taken up by scholars who were neither linguists nor historians. Archaeological investigations offered the promise of discovery of the physical characteristics of Aryans, once a skeletal record could be associated with an ancient site of undisputed Aryan occupancy. The search for the Vedic Aryans by archaeologists involved two research strategies: 1) the discovery of the Aryan

homeland within the vastness of Western and Central Asia; and, 2) recovery of Aryan archaeological sites within the Indian subcontinent.

The archaeologist who was most influential in this century on the question of Aryan origins was V. Gordon Childe, author of *The Aryans: a Study of Indo-European Origins*, published in 1926. Childe was influenced by linguistic data in his effort to establish a homeland of the ancient people whose Indo-European languages formed a philological bond between his British countrymen and their colonial subjects in India. He was influenced, too, by the "Four Empires" concept which lent a mystical quality to the shift of civilisation from the Near East to northwestern Europe. Gustav Klemm's idea of creative and passive races appealed to Childe, the people of the Orient being characterised as stagnant and degenerate while Europeans were held to be superior in the qualities of energy, inventiveness and independence. In his biography of Childe Bruce Trigger (1980) observes that national character rather than history and geography were held by Childe to be the causes of these ethnic differences, prehistoric peoples being ascribed the same qualities as their living descendants. Thus racial identity could be discovered from a philological approach, and these data could be employed by the archaeologists to identify the races of the people whose sites were excavated. Even while admitting that the early developments of agriculture, metallurgy and the sciences came from the speakers of the Semitic languages of the Near East, Childe held that when these inventions were adopted by Indo-European populations they were brought to their highest development and into the realm of true civilisation. The Indo-European speakers achieved this not because of superior intelligence or culture, but because of the higher qualities of their language which was the hallmark of a more competent mentality.

Such racist beliefs held in the name of scientific truth and archaeological relevance were not unique to Childe prior to the Second World War. Yet it is easy to understand why his book is not read today, even by those seeking a solution to the questions of Aryan origins. Rather, the value of Childe's work rests in his effort to tie the prehistory of Europe and the Near East to the prehistory of India in a manner that had not been carried out by earlier scholars. In *The Aryans*, Childe's statements are emphatic on this issue:

> Aryan people first emerge from the gloom of prehistory on the northern borders of the Fertile Crescent of the Ancient East... So it is clear enough that the dynasts installed on the Upper Euphrates by 1400 B.C. were Aryans, closely akin to those we meet in the Indus Valley and later in Media and Persia... (the first Aryans were racially Nordics and) the Nordic's superiority in physique fitted them to be vehicles of a superior language. (Childe 1926: 16, 19, 212)

Childe went on to argue that the Nordic Battle-Axe people of the European Stone Age were ancestors of the Aryan nations of historic times, the two centres of origin being Scandinavia and South Russia, although the priority of these two regions as the home of the original Aryans remained uncertain to Childe.

The Kurgan Culture of the fourth and third millennia B.C., in the steppes to the west of the Ural mountains, has been described by Marija Gimbutas as characterised by stock breeding, horses, metallurgy of copper and bronze, spoked wheels, horse drawn chariots, hill forts, a casual but undeveloped practice of agriculture, mortuary barrows, and other features that led her to conclude that:

> Post-World War II developments in archaeology in general and, in particular, the breathtaking pace of excavations in the Soviet Union and its satellite countries have changed many of the old views on "die indogermanische Urheimat" (Indo-Germanic homeland). Chronological and geographical gaps gradually are being filled and archaeologists can present some facts with some certainty. The existence of the Indo-European homeland advocated by linguists for more than 100 years is no longer an abstraction; results achieved by archaeological research make it possible to visualize the homelands, at a certain time and place, as a historical reality... Constantly accumulating archaeological discoveries have effectively eliminated the earlier theories of Indo-European homelands in central or northern Europe and in the Balkans. The Kurgan culture seems the only remaining candidate for being Proto-Indo-European. (Gimbutas 1970: 155-156)

The concept of a Kurgan culture was reexamined in 1986 by David W. Anthony (1986), an American archaeologist trained at the University of Pennsylvania and an expert on the topic of horse domestication. Rather than viewing the Kurgan Culture as a homogeneous entity, Anthony notes that Soviet and Romanian archaeologists prefer to regard it as a term embracing several distinctive cultures called Yamnaya, Srednij-Stog, Usatavo, lower Danube, Ochre Graves and Černavoda I-III. In this approach, Kurgan is best conceived as a cultural horizon, and Yamnaya is really a socio-economic phase within it. In disassembling the Kurgan horizon and reassembling its archaeological constituents, Anthony uses a new framework based upon ecological and cultural stresses between populations of the North Pontic lowland steppes and the upland forests. He uses as models the technological changes wrought by the introduction of horses into native cultures of the Grand Chaco-Pampas region of South America and the plains of North America, hypothesising that the Pontic peoples of the fourth millenium B.C. entered upon a period of economic and territorial expansion which dramatically altered earlier behavioural patterns.

Anthony concludes that the archaeological evidence of the Pontic region indicates that the Indo-European homeland need not have been on the steppes of Central Asia, as so many linguists have argued, but rather in the lands to the west whence came horses, sheep, goats, cattle, carts, mortuary rituals and metallurgy. By returning the place of Aryan origin to Europe, Anthony has not escaped the biases of his predecessors, who assumed that language and culture were inseparable in resolving this particular enigma of archaeology and culture history.

While in favour of Gimbutas' claims, Raymond and Bridget Allchin (1982) do not rule out the possibility that Indo-Aryans may also be identified with the Timber-Grave/Andronovo Culture which flourished around 2000 B.C.,

or with some of its tribes sweeping southwards to the Iranian plateau. They note that Kassite rulers of Babylon had Indo-Aryan names at the beginning of the 16th century B.C., as did the Mitannian rulers of later centuries. The gods of the Ṛgveda - Mitra, Indra, Varuna - are also familiar to these ancient populations of western Asia. On the basis of linguistic interpretations, the Allchins conclude that there were two periods of Indo-Aryan invasions from 2000 to 1400 B.C.. The first migration was undertaken by Dardic-speaking, non-Sanskrit and pre-Vedic Indo-Aryans; the second by Sanskrit speakers who established the Vedic traditions and moved both westwards to Mesopotamia and eastwards to the Indus plain. The Dardic-speakers became isolated in the northwestern sector of modern Pakistan, in the regions of Kafiristan, Gilgit and Chitral. Gradual, rather than sudden, displacement of the aboriginal populations in India characterised this infiltration of Indo-Aryan speakers racially distinguished from non-Aryan groups. The nature of this racial distinction is not described by the Allchins.

In a brilliant reappraisal of the problem of Aryan origins, the Indian archaeologist B.K. Thapar (1970) observed that all of the reputed homelands of the Aryans are postulated as existing between 30° and 70° North parallels and 5° and 95° East meridians. Dates of their first appearance range from 8000 to 1400 B.C.. His list of reputed homelands of the Aryans is formidable, but each locality has earned the serious consideration of one or more scholars. Thapar includes in this list, culled from the scientific and quasi-scientific literature, Scandinavia, Tibet, the Danube basin, the Baltic region, the central European steppes (Carpathian plains, Siberia, Ukraine, and the lower Volga Valley between Altai and Kazakhstan), and southern Russia between the Caucasus and eastern Europe (Turkmenistan, northwestern Kirghiz steppes, Pamirs, Bactria, and the Central Asian plateau). Eastern India has been considered as well. Thapar notes that the Aryans have been identified with the Kassites of northern Iraq of the 18th century B.C. and with the Mitanni of the upper Euphrates of 1400 B.C..

In the fevered brain of Bal Gangadhar Tilak, a prominent Indian statesman, the Aryan homeland was within the Arctic Circle. His hypothesis relied upon the writings of Reuben Burrow, a founding member of the Asiatic Society, writing in 1789 about Hindu mathematics. To Burrow's assertion that the equator once lay further to the north and that temperate climates once prevailed in Siberia, Tilak added his interpretations of references in classical Indian epic poetry to the fixed Polar star, the frosty night lasting six months, the place where the sun rises but once a year, and "captured waters turned into motionless beautiful statues" which he interpreted as icebergs. These musings on the lunatic fringe of archaeology have been given a fair assessment by Gregory Bongard-Levin and Edwin Grantovsky (1968) who conclude that the Arctic was never the homeland of any ancient peoples of India but that legends of the cold lands and icy seas of the Polar region entered the Indian mythological sphere through Iranian-Scythian cultural contacts, in much the same way that the ancient Greeks

heard of the Arctic region from their contacts with Scythians living far to the south of that mysterious land.

Thus, the archaeological quest for Aryan origins in lands beyond the Himalayas and the Khyber has not been successful in isolating an Aryan phenotypic pattern. Has the search for Aryans within the subcontinent been more successful?

For those who accept the concept of a definable Aryan phenotypic pattern and demographic changes wrought by the invasion of a population bearing distinctive racial characters, results of archaeological investigations in India and Pakistan may appear to be more encouraging. Native scholars have been more often directly involved in quests for Aryans within their national borders, and a prehistoric skeletal record exists in association with some sites they would include within the sphere of Aryan influence.

Speculations about the archaeological traces of the Aryans in South Asia were feeble before Sir John Marshall began excavations at the Harappan sites, but the artefactual record was too meagre. Even in 1921 Marshall (1921: 558) wrote, "Notwithstanding the wide extent and long duration of Vedic Civilisation in Northern India there is but one group of monuments now existing to which there is any warrant for assigning a Vedic origin." Marshall was referring to Theodore Bloch's excavations of 1904-1907 (Bloch 1905, 1906, 1907) at Lauriya Nandangarh in Bihar, a site covered with mounds and the locus of an Aśokan pillar. Bloch, a surveyor in the Archaeological Survey of India, attributed his find of a gold leaf with a rough outline of a female on it to the Vedic goddess Pṛthvī, while the mounds were interpreted as the burial places of Vedic Aryans. The dating of Lauriya is not earlier than the eighth century B.C., and Marshall was cautious in supporting Bloch's interpretations of the site, attributing the earlier Indus Valley Civilisation to pre-Aryan, non-Vedic populations.

Harappan sites did not become associated with the Aryans until a decade later, with the discovery of Cemetery H at Harappa. Between 1928 and 1934, M.S. Vats continued excavations of this large burial area and correctly noted its post-Harappan antiquity. Differences in burial practices and ceramic decorative motifs impressed Childe (1934) who ventured the opinion that the Cemetery H people were Aryans. Vats (1940) pointed out the Vedic features of the painted decorations on the pots from Cemetery H, by which time B.N. Datta (1936) had published his article entitled "Vedic funeral customs and Indus Valley culture" in *Man in India*.

The Aryan presence in the final days of the Harappan Civilisation received its most dramatic (and romantic) support when Mortimer Wheeler suggested that Aryans had brought about the destruction of the cities of the Indus valley. Wheeler based this theory on his interpretation of a fortification with gateways and bastions which he discovered at Harappa in 1946. Blocking of the entrances of the western gate-complex held significance for Wheeler as a former

military officer, but he sought further support of his hypothesis in the references in the Ṛgveda to the fortified strongholds of the non-Aryans which were destroyed by Indra, the Aryan god of war. Finally, Wheeler pointed to the disarray of human skeletons at Moenjodaro, which he assumed were victims of a massacre wrought by invading Aryan warriors. Although his enthusiastic claims for accounting for the decline of Harappan culture, as well as his analysis of the so-called "massacre" at Moenjodaro, have not withstood the test of more recent archaeological investigations (Dales 1964; Kennedy 1981, 1984) his views gained tremendous popularity in the middle of this century, in part because they were accepted by Stuart Piggott (1950) who recognised a "time of troubles" in the evidence from a number of excavations in Sind and Baluchistan. Piggott thought that the burnt-out deposits at Rana Ghundai IIIC, Nal, Dabarkot, Shahi-tump and Chanhudaro, and the artefactual materials from these sites, went far to account for a period of social and political disruption which coincided with the reputed dates of the Aryan invasion and the decline of Harappan Civilisation. Although Piggott was cautious in accepting the Cemetery H people as Aryans, suggesting that they might be the remains of later Iranian invaders, he did contribute to the thesis that widespread demographic events introduced new cultural traditions into South Asia at the moment of the Harappan decline.

Proponents of the idea of Aryan affinities with the architects of the Harappan civilisation include K.N. Shastri (1965), who noted what he perceived to be similarities of material culture found at these sites with descriptions of the Aryan life way in the Vedic sources. Another approach has been used to set the date of the Mahābhārata battle back to 3100 B.C., which would make it contemporary with the Harappan culture and hence the tie with Aryans, as proposed by S.P. Gupta and K.S. Ramachandran (1976) along with certain contributors to their book, *Mahābhārata - Myth and Reality: Differing Views.* Those who would favour a short chronology for the Harappan culture include D.P. Agrawal and S. Kusumgar (1974) who seek cultural associations of the Indus Valley with Mesopotamia in a period of 2300-2000 B.C.. This chronology has found favour with Allchin and Allchin (1968: 144) who date the beginnings of Harappan culture to around 2150 B.C. and conclude that "it is necessary to admit that not only the end of the cities, but even their initial impetus may have been due to Indo-European speaking peoples."

Meanwhile, another argument for archaeological traces of Aryans was presented by the Austrian anthropologist Robert Heine-Geldern (1936). A member of the diffusionist school who was influenced by the writings of Father Schmidt, Heine-Geldern sought the origins of the Aryans in eastern Russia and the Caucasus. Copper and bronze tools recovered from post-Harappan sites in northwestern India are stylistically similar to axes, adzes, swords and harpoon heads from archaeological sites in Iran and the U.S.S.R. More specifically, a flat axe with lateral lugs from the Kurram valley, a dagger or sword with an elabo-

rate hilt from Rajanpur, and antennae-swords from several Gangetic sites had been recovered from unstratified localities and appeared, to Heine-Geldern at least, to have technological and stylistic parallels to finds from Turang Tepe in Iran and sites in Georgia which dated to 1200-1000 B.C.. An axe-adze found at Moenjodaro in one of the later occupational levels was regarded by the Austrian anthropologist as an import from the steppes of southern Russia, via Caucasia and northern Iran, coming into the Indus Valley by 1200-1000 B.C.. The Rajanpur dagger may have come from as far away as the western Asiatic tracts between Babylonia and Caucasia, while the antennae-swords of the Gangetic Valley find parallels in the archaeological material of the Koban culture of southern Russia. Heine-Geldern's thesis of a late second millenium B.C. cultural intercourse between northern India and western Persia, Transcaucasia and southern Russia was extended to include the Copper Hoards of the unstratified Gangetic sites, all viewed as products of an invading Aryan population. The association of the Copper Hoards with Aryans had been proposed a decade earlier by P. Mitra (1927: 300), but it was Heine-Geldern who popularised the idea and identified the creators of the hoards with particular ancient populations outside India.

Heine-Geldern revived his earlier hypothesis about Aryan archaeological evidence when, in 1956, he noted that the animal-headed copper pins from Moenjodaro and Harappa, the seals from Jhukar and a bronze macehead from Chanhudaro were to be added to his list of items he had ascribed to the Aryans twenty years earlier. He claimed that all of these artefacts, along with the antennae swords from the Gaṅgā valley, were derived from high cultures to the west of the Indus. The time frame of 1200-1000 B.C. seemed to him to cover the period of manufacture of these materials, and he was unable to conclude that coincidence could produce such fundamental similarities of style and methods of manufacture. This similarity has been noted by others (Lamberg-Karlovsky 1967: 155) who have not felt it necessary to associate the ancient people of Byblos with those of the Gangetic plain. As early as 1951 B.B. Lal disputed that the Copper Hoards, and the tools which were of such importance to Heine-Geldern, were testimonials of Aryan presence. Nor did Lal (1953) concur with Wheeler that the Cemetery H people were the Aryan conquerors of the Harappan Civilisation, noting that between the final Harappan level and the Cemetery H burials and pottery intervenes a layer of debris without specific cultural association. Lal's rejection of the Aryan presence at the end of the Harappan achievement, at least to the extent that Aryans had brought about the end of the culture, found support among his Indian colleagues (A. Ghosh 1962) and from George F. Dales (1964).

However, Lal was not rejecting the possibility that archaeological evidence could be found to document the Aryan presence in India. He proposed in 1955 that the hallmark of Aryan culture was a wheel-made, smooth and dark gray ceramic fabric called Painted Grey Ware (PGW) which was first observed

at Ahicchatrā in the early 1940s (Ghosh and Panigrahi 1946). Lal established the stratigraphic position of this ware at Hastināpura in 1950 and noted that it was distributed over the upper Gangetic valley, the Indo-Gangetic doab and to the banks of the Sutlej, the Sarasvatī-Dṛṣadvatī valley, western Rajasthan and appearing sporadically in western and central India. In association with this pottery at Hastināpura and at other localities were remains of rectangular-shaped houses of mud and mud-brick, copper objects, bone tools and objects of iron. Terracottas, glass bangles, hoes, adzes and beads are other components of the cultural inventory associated with PGW culture. The economic strategy was farming and herding, for bones of domestic pig, buffalo, horse, cattle and sheep appear alongside bones of deer. Radiometric dating of the sites indicates an antiquity of 1000 to 400 B.C. (Agrawal, Kusumgar, and Unnikrishnan 1966). Lal's reason for associating this cultural complex with Aryans is based upon the mention of its localities in the Mahābhārata, the identification of a layer of flooding debris at Hastināpura which is associated with mention of a flood in the Mahābhārata, and the presence of the pottery fabric in those portions of India associated with the movements of the Aryans. Furthermore, Lal claimed that there are PGW sites outside India, namely in western Asia, Iran and southern Europe.

While Lal cautioned that his hypothesis was provisional, and depended upon confirmation from ethnographic and epigraphic sources, his association of PGW and the cities of Hastināpura, Mathurā, Ahicchatrā, Kāmpilya, Barnawa, Kurukṣetra, and others of importance in the Mahābhārata with Aryan culture found wide appeal among his Indian colleagues, as well as among certain Western scholars (Basham 1963). To some it meant that the evidence of Aryan settlements had been proven archaeologically; to others, Lal had established the veracity of the Mahābhārata tradition. But problems arose with the more exact dating of PGW levels at various sites, with a more recent radiometric study indicating that those levels fell more precisely within the time frame of 800 to 350 B.C., well past the traditional dates assigned to Aryan movements into India, as well as some centuries after the dates assigned to the events described in the Mahābhārata. Even before the new dating evidence was available, Wheeler (1959) had recognised the lateness of the PGW complex and the hiatus of a few centuries between its earliest appearance and the end of the Harappan culture, therefore proposing that it was to the second wave of Aryan migrations that Lal's hypothesis would have relevance. Thus Wheeler accepted the Hoernle-Grierson hypothesis of two Aryan waves, an idea that appealed to S.R. Das (1962) who observes that the Ṛgveda does not mention pots and potters and that this technology comes in with later Vedic times where it is associated with non-Aryan *asuras*.

Today, few Indian archaeologists fully support Lal's view of the Aryan association with PGW, and Lal himself has re-emphasised the highly circumstantial body of evidence that he first proposed in 1951. A very helpful assess-

ment of his hypothesis comes from D.K. Chakrabarti (1968) who lists a number of objections to it.

The exploration and excavation of Chalcolithic sites in Rajasthan, Maharashtra and Andhra Pradesh by H.D. Sankalia and his associates opened up to archaeologists of the 1950s and 1960s a new world of elaborate ceramic forms of high artistic merit and a higher technology of copper-smelting. The dates of these sites fell within the middle of the second millennium B.C., extending back by several centuries Heine-Geldern's dates of 1200-1000 B.C.. Like his Austrian colleague, Sankalia (1963a, 1963b) was convinced that the origins of these Chalcolithic materials and technologies were to be found in the west, and that these tribes were of pre-Aryan origin from Iran, the true Aryans coming later and leaving as evidence of their invasion the southern Indian Megalithic people who were familiar with the horse. Sankalia (1967: 106) has based a good part of this hypothesis upon the finding of a horse bone at one of these southern sites.

Writing at about the same time, D.P. Agrawal (1966) identified the first wave of Aryans with the Ahar culture of southeastern Rajasthan, characterised by elaborate products of a sophisticated knowledge of copper-smelting, houses of burnt bricks, terracotta figurines of cattle, a plain and painted black and red ware and a subsistence pattern based upon herding and agriculture. The Ahar culture flourished in the middle of the 18th century B.C. and is represented at the site of Gilund as well as at Ahar. Agrawal attributed these cultural innovations to Harappan craftsmen who were hired by intrusive western Asians of this first wave of Aryans, while the second wave is represented for him by the PGW people.

Reservations about claims for archaeological identification of Aryans have been expressed by scholars who are dissatisfied with the assumption they encounter in the vast literature on the subject (Chakrabarti 1968). In discussing the search for the existence of Aryans in ancient texts, the reward is no less frustrating, as M.C. Joshi (1975-1976: 102) has expressed:

> It is clear from what has been discussed above that Indian tradition, Vedic or Puranic, is not likely to help much in the interpretation of archaeological data. The theories proposed by reputed archaeologists are laboured ones and based on preconceived notions. Most scholars have twisted the traditional accounts or invented their own legends to suit their interpretations because it is utterly difficult to apply the tradition as a whole to the field of pure archaeology involving one or more material cultures ... [the] majority of Indian traditions are unhistoric and coloured and therefore none of their archaeological interpretations would prove to be free from subjectivity. The Rāmāyaṇa and the Mahābhārata were not written for the simple aim of recording past happenings, but these were composed with the specific purpose of expounding the message of *dharma* through the stories, in the tradition of the Aśokan *dharma* which itself was the outcome of the problems growing out of the Iron Age urbanisation. Even the later and secular Indian tradition connected with Vikramaditya or Alha-Udal cannot be explained in archaeological terms. Hence tradition and archaeology cannot be mixed together in any form at least as far as Indian protohistory is concerned.

Romila Thapar (1975-1976: 86, 96, 98) writes, as a historian, that:

> In the absence of contemporary written records or deciphered scripts, any attempt to correlate archaeological material with traditional accounts of the past becomes a venture into speculation ... From recent work in linguistics it is clear that invasion is not the only means of accounting for the spread of a language... Once the archaeological pattern is more clearly defined and the information arrived at placed on a firmer footing, then the correlation with the historical tradition from literary sources might be more meaningful.

The Gandhāra Grave culture provides the earliest indication of the growth of an Aryan culture in South Asia, according to George Erdosy (1989) although he does not support the idea that ethnic Aryans were invaders from outside the subcontinent. Rather, he looks to the post-Harappan period as one of deurbanisation, increased population, introduction of new crops and ecological changes relating to shifting and drying water-courses in the northwestern sector. He finds the changes of material culture encountered in Swat and extending to the Peshawar Valley and Charsada region reflected in Phase V of the Swat sequence when cremations and fractional burials outnumber inhumations and attention is given to horse burials, horse figurines, and horse trappings. These features are particularly common in Swat and Dir, and the introduction of the horse is attributed to the Aryans. A mixed pastoral/agricultural economy practiced by small groups of people who began cultivating rice along with wheat and established their settlements in strategically defendable positions all suggest to Erdosy a picture of Aryan culture described in the Vedic accounts. The dating of the Gandhāra Grave culture from the sites of Ghalighai, Aligrama, Katelai, Butkara and Loebanr to 1400-800 B.C. coincide with the traditional periods of Aryan ascendancy. By the beginning of the first millenium B.C. certain features of the Gandhāra Grave culture took root in the Gaṅgā Valley with emphasis on horses, cremations, and pastoral-agricultural economies. Although Erdosy considers the Aryans to be an indigenous South Asian population, he is aware that the history of Indo-European language diffusion is far from well-documented, even if it appears earlier in the Indian subcontinent than in Mesopotamia. Certainly its presence in India and Iran may be of much greater antiquity than that of the traditional date of the Aryan invasion.

Physical Anthropology

Determination of the physical characteristics of Aryans based upon anatomical data have their beginnings in 1840 when Anders Adolph Retzius (1842, 1846, 1859) introduced the cephalic index and his theory of cranial shapes to the Academy of Sciences at Stockholm. Publications of a series of lectures on these subjects appeared two years later. On the basis of establishing the ratio of cranial

length to breadth expressed as a percentage, Retzius compared European crania from various localities. He concluded that autochthones of the continent had been brachycephalic. His Swedish countrymen and their Scandinavian and German neighbours had high frequencies of dolichocephaly. Retzius assumed that this cranial shape was a salient physical feature of the ancestors of modern Nordic peoples, namely the invading Aryan race which introduced Indo-European languages to the continent. Thus the dolichocephalic skull became the hallmark of Aryan racial affinities and aristocracy while brachycephaly was a feature of lesser, non-Aryan European breeds. Although Retzius' French contemporary Paul Broca (1864) rejected the correlation of cranial shape with language, history or archaeology, and by 1912 Franz Boas (1912) had established that the variable is responsive to environmental changes involving nutrition and growth among immigrants, the cephalic index was regarded by many anthropologists as an unmodifiable hereditary trait.

The application of cranial length-breadth measurements and other anthropometric indices to the living peoples of South Asia was initiated by Baron Mezö-Kövesd Ujfalvy who visited the Northwest Frontier in 1881-1882 under the auspices of the Societé d'Anthropologie de Paris. His work inspired the British archaeologist Sir Aurel Stein to include anthropometric analysis in his three expeditions to Russian and Chinese Turkestan between 1900 and 1928. Stein's data on the Baluchis, Pathans, Red Kafirs and Hunza included cranial measurements and somatoscopic observations. Much of his data was analysed by T.A. Joyce (1912) and G.M. Morant (1936) with the application of Pearson's Coefficient of Racial Likeness.

Considerable anthropometric data collected from castes and tribes in India were engendered by Herbert Risley (1908) who was appointed Commissioner of the Census of India for 1901. Anthropometric data were an integral part of the Census report and in 1905, when appointed Director of the Ethnographic Survey of India, Risley was able to expand his study of anthropometry. The officers he trained followed standards described by Manouvrier, and it soon became apparent that dolichocephaly prevailed in highest frequencies in all ranks of society in the provinces representing Vedic Aryandom and among many living brahmans. However, the assumption that dolichocephaly and Aryanism were inseparable was threatened by Risley's observations that longheadedness also occurred in high frequencies among Dravidian-speaking populations of peninsular India, which were far removed from the sphere of Vedic culture. Furthermore, not all brahmans of northern India were dolichocephalic, some having embarrassingly broad heads within the range of variation of certain tribal populations, European Celts and Far Eastern populations of China and Mongolia!

Risley's solution to this enigma was to derive the broadheaded populations of Gujarat, Maharashtra and Coorg to post-Vedic Scythian admixture, while the broadheaded Bengalis and Oriyas were the consequences of Mongolian

intermixture. But this was an intolerable thesis to Ramaprasad Chanda whose book *The Indo-Aryan Races* appeared in 1916, the first book in English by an Indian scholar on the subject of the biological properties of Aryans. In order to retain the pure lines of descent of modern brahmans to Vedic Aryans, be they broad- or longheaded, Chanda took refuge in the Hoernle-Grierson linguistic thesis of two waves of Aryan migrations. He decided that the home of the brachycephalic Aryans lay beyond the Indus in Baluchistan and Afghanistan, where living Baluch and Pathan people sport meso- and brachycephalic heads whence issues Aryan (Iranian) speech. These Outlandic Indo-Aryans, or Indo-Afghans, made up the latest wave of invasion of Vedic people into regions where broad-headedness predominates today.

The double-wave hypothesis of Aryan arrival in India was also favoured by B.S Guha (1938), a physical anthropologist trained by Roland Dixon at Harvard, and Director of the Anthropological Survey of India. In compiling ethnographic data for the 1931 Census, Guha made a distinction between a basic Mediterranean dolichocephalic racial element common to brahmans and the upper classes of India, and a superimposed Alpine brachycephalic strain appearing in western India and Bengal which, he asserted, was racially connected to a proto-Nordic element. Guha added to his criteria of Vedic Aryan dolichocephaly some physical features encountered among living peoples of northwestern India, namely taller stature than neighbouring populations, long (leptorrhinic) noses, elongated (leptoprosopic) faces and light pigmentation. Having so defined the Aryan physical type and accommodated brahmans into the fold, it remained for anthropologists to discover and recognize this phenotypic pattern in the ancient mortuary sites of India.

This brief account of the development of the Aryan racial type does not do justice to elaborations of this subject by various racial palaeontologists, especially A.C. Haddon (1911), J.H. Hutton (1946), G.M. Morant (1936), Felix von Luschan, Eugene Fischer (1926) and Egon von Eickstedt (1926, 1934). To these eminent names should be added those of Indian scholars who wrote about ancient and contemporary races of India, especially A.K. Mitra (1963), D.N. Majumdar (1961) and P.C. Dutta (1984).

One significant application of these racial sorting criteria to Aryans was by Chatterjee and Kumar (1963) who sought the Aryans in the Cemetery H population at Harappa. They identified certain skeletons as Proto-Nordic, hence "the appearance of Proto-Nordics at Harappa confirms that towards the close of the third and the beginning of the second millenium B.C., there was an ethnic upheaval and movement of Indo-Europeans or Indo-Aryan people who spread their culture to India."

As early as 1926 Childe had considered the possibility that the Cemetery H people were Aryans. He made this conjecture on the basis of burial position, not biological criteria. The idea has been perpetuated by G.D. Kumar (1973)

who finds a Proto-Nordic element in the skeletal remains at several sites of the Mature Harappan period as well as in western Asia. However, the Aryan racial element remains elusive.

More recently, Wolfram Bernhard (1967) concluded that human remains excavated from Period I levels at Timargarha in the Gandhāran region of Pakistan bear close anatomical similarities to Bronze Age and early Iron Age crania of 2500 B.C. - A.D. 500 from the Caucasus and Volga regions as well as from Tepe Hissar in Iran. Bernhard concludes that Period I graves are those of the Aryan invaders. He used a Penrose distance method of determining morphological similarity from cranial specimens from Timargarha and other mortuary sites. The study bears important implications for Erdosy's (1989) argument that the Gandhāran region was the focus of early Aryan culture, although Erdosy does not support Bernhard's acceptance of invasions as the critical demographic event.

A recent study by Hemphill, Lukacs and Kennedy (1991) supports the thesis that ancient Gandhārans and Harappans share significant similarities in craniometric, odontometric and discrete trait variables. Using a comparative sample of cranial specimens from prehistoric Pakistan, modern cranial specimens from the periphery of that country, and prehistoric crania from Egypt, Anatolia, Mesopotamia and the Iranian plateau, cluster analysis and principal component analysis were applied in order to assess degrees of biological affinities for multiple variables. The results of craniometric variation among prehistoric Pakistanis indicate significant separation between samples of northern Pakistan (Harappa, Timargarha) and southern Pakistan (Moenjodaro). When craniometric variation among prehistoric Pakistanis is contrasted with living populations from the northern and southern regions of the subcontinent, the analyses demonstrate that all Indus Valley samples (except for Moenjodaro) share closer affinities to one another than to the peripheral South Asian groups. Individuals from Cemetery R-37 share close affinities with open burials from Cemetery H and with Timargarha, while there appears to be no close affinity between the open and jar burials from Cemetery H. When these craniometric variables of prehistoric and living South Asians are compared with prehistoric samples from the Iranian plateau, western Asia and Egypt, there appears to be an obvious separation of South Asians from these outliers. Samples from all Indus Valley sites (except for Moenjodaro) possess strong affinities to one another, and, apart from Timargarha and the open burials of Cemetery H, the Cemetery R-37 individuals possess the closest affinities to individuals from Tepe Hissar III (Figures 1-4).

Our multivariate approach does not define the biological identity of an ancient Aryan population, but it does indicate that the Indus Valley and Gandhāra peoples shared a number of craniometric, odontometric and discrete traits that point to a high degree of biological affinity. Evidence of demographic discontinuities is present in our study, but the first occurs between 6000 and 4500 B.C. (a separation between the Neolithic and Chalcolithic populations of Mehrgarh)

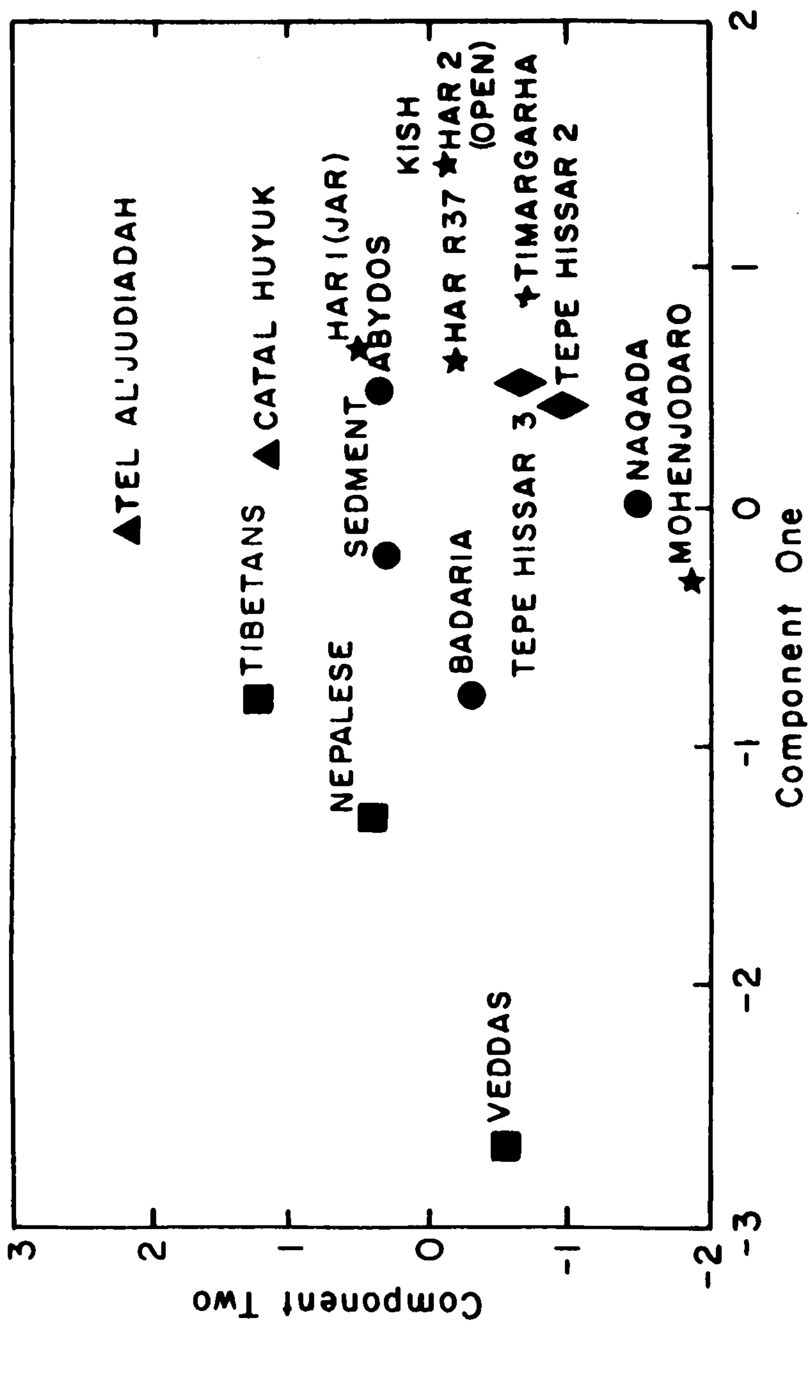


Figure 1: Ordination of Principal Component Scores Derived from Craniometric Variation among all Groups

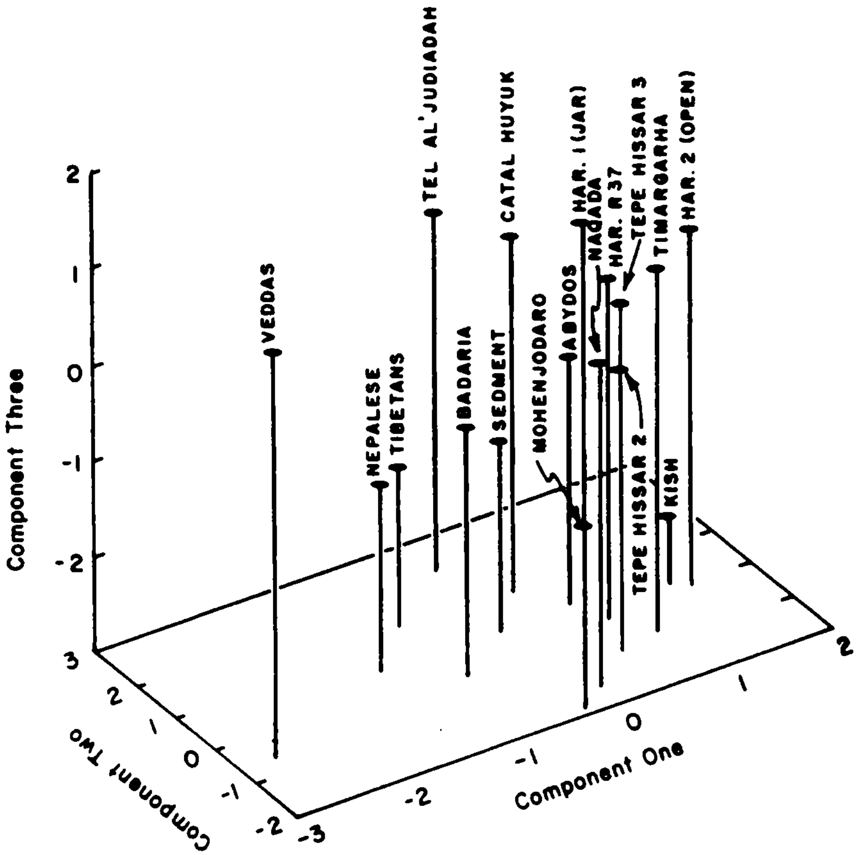


Figure 2: Ordination of Principal Component Scores Derived from Craniometric Variation among all Groups

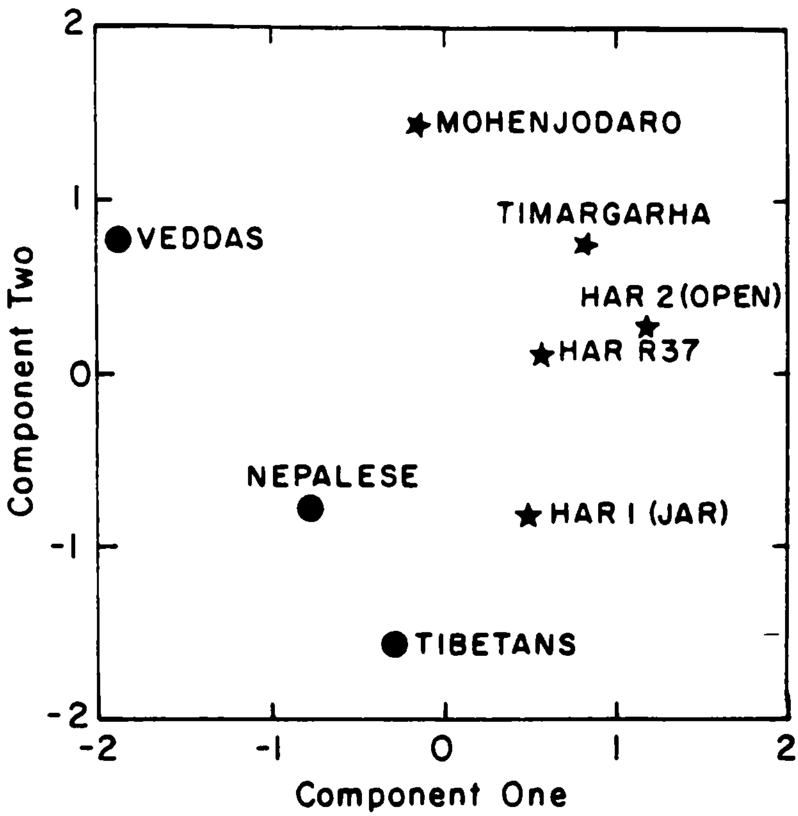


Figure 3: Two-dimensional Ordination of Principal Component Scores Derived from Craniometric Variation among South Asians

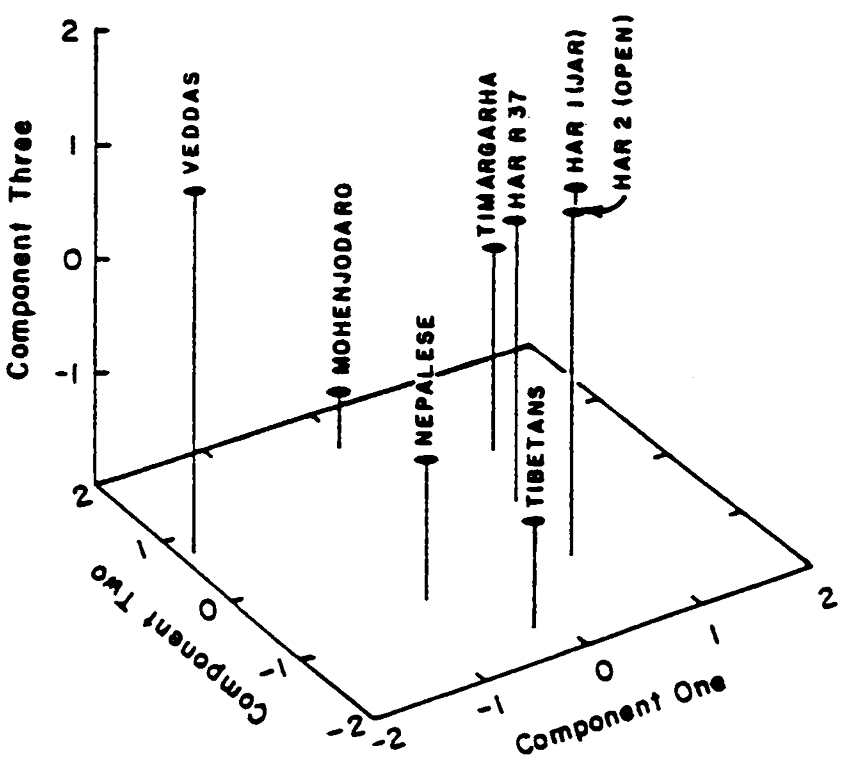


Figure 4: Three-dimensional Ordination of Principal Component Scores
Derived from Craniometric Variation among South Asians

and the second is after 800 B.C., the discontinuity being between the peoples of Harappa, Chalcolithic Mehrgarh and post-Harappan Timargarha on the one hand and the late Bronze Age and early Iron Age inhabitants of Sarai Khola on the other. In short, there is no evidence of demographic disruptions in the northwestern sector of the subcontinent during and immediately after the decline of the Harappan culture. If Vedic Aryans were a biological entity represented by the skeletons from Timargarha, then their biological features of cranial and dental anatomy were not distinct to a marked degree from what we encountered in the ancient Harappans.

Present status of the Aryan concept

Did Aryans exist? This is a question posed by James Shaffer (1984b). He begins his analysis with a review of the idea of Aryans in both western and Indian sources, but concentrates upon evaluation of the claims that the Aryan presence is to be found in the Harappan and/or PGW cultures. He finds several problems in the argument that the ancient Harappans were Aryans. Shaffer notes that the discovery of extensive nonceramic occupations associated with early domestication of animals at Mehrgarh, Baluchistan, date to before 6000 B.C., thereby establishing the antiquity of human occupation of the Indus Valley region and giving strong support to the idea that civilisation arose indigenously in this part of the world. In short, no invasion of more highly endowed populations is called for. Furthermore, the richness of pre-Harappan sites at Kot Diji, Sothi and Gumla establishes the roots of the native high culture that is recognised as Harappan. The short chronologies, as well as those that would put the beginning of the Harappan achievement at 3100 B.C., must yield to more recent radiometric dates that put the civilisation within the time frame of 2500 to 1700 B.C., i.e., well before the date of 1500 B.C. favoured by many champions of the Aryan invasion. To this formidable list of data Shaffer adds that the widespread reference to iron in Vedic literature, yet its apparent absence at Harappan sites, implies that Vedic literature must be much more recent in date and not contemporary with dates for Harappan culture. Nor does the archaeological evidence support a thesis that Harappan politics was dominated by hereditary elites, as was the situation at the time of the Vedas. Finally, Shaffer observes that the attribution of the PGW culture to Aryans runs counter to a thesis identifying Aryans with Harappans. Nor could Aryans have brought about the decline of Harappan culture, as preached by Childe and Wheeler, an especially unlikely thesis now that Dales has advanced other theories which do not depend upon the so-called massacre at Moenjodaro.

In assessing the attribution of the post-Harappan cultures of PGW, Cemetery H, Jhukar, Ochre Coloured Pottery, Copper Hoards, etc. to Aryans,

Shaffer notes that the archaeological evidence appears to fit slightly better. The chronology of the PGW culture coincides with the generally accepted date of Aryan invasions and may account for the stratigraphic hiatus between this culture and the end of the mature Harappan phase; the geographic distribution of PGW sites in the Gaṅgā-Yamunā region coincides with that of the arena of early Aryan activity; the lower levels at Hastināpura appear to coincide with references in the Mahābhārata; PGW culture overlaps stratigraphically with the Northern Black Polished Ware and is the earliest cultural association with a variety of iron artefacts, an interesting feature since iron is indicated in Vedic literature; the domesticated horse appears with the PGW and is also a feature of Aryan culture; there are cultural differences of absence of mud-brick architecture and stylistic forms of ceramic fabrics that distinguish PGW culture from earlier cultures as well as from those of a later historic period.

However, Shaffer is unable to support the affiliation of PGW with the Aryans for reasons given by Thapar (1970), namely that if the former represents the Aryans, then, according to accepted theories, similar or earlier pottery types should be located in regions to the west of the Gaṅgā-Yamunā region on the Iranian plateau. This is not the case. There is no trace of the path of the Aryan migration. Chakrabarti (1968) would find the origins of elements of the PGW culture in eastern India or even Southeast Asia. Shaffer notes other archaeological inconsistencies with the hypothesis, and contends that iron was not imported from outside India but was an indigenous development (Shaffer 1984a). In short, the PGW culture itself is not an import from the west but is a native cultural development. Thus, there is no archaeological evidence corroborating the fact of an Aryan invasion. Shaffer offers two conclusions that may be drawn from the archaeological record. First, there is no connection between the two cultures described above. Second, if the Aryan concept has any cultural meaning at all, then such a culture as the PGW had an indigenous South Asian origin within the protohistoric cultures of the Ganga-Yamuna region. Again, the conclusion is the same; there is no evidence of a cultural invasion from the west.

What has become of the Aryan in this reassessment of the problem? One conclusion is that a false assumption has been made in associating the linguistic reality of Indo-European languages in South Asia with a hypothetical migration of people called Aryans who have brought the language along with a cultural armentarium. As Barth (1972) and others have demonstrated, linguistic change and associations are brought about by complex cultural processes which do not necessarily involve the movements of people. Shaffer thus closes his stimulating study with the assertion that although Vedic literature exists and may reflect historical and cultural events, it does not document a historic invasion. Rather, something else is reflected in the Vedas. And that mysterious something is a myth based upon a fundamental reconstruction of society by hereditary elites who sought to justify their superior social and political position. For a dominant

social group to depict itself as the descendant of conquering invaders, of noble purpose and desirable belief systems, could only serve to justify its ascendancy over other existing social groups. Cultural rationalisation is the stuff of myths. Such myths best cope with the paradoxes of daily life as well as with the more complex orderings of society and sanctions allowed certain individuals for the full exercise of authority.

Language has served as proof of the Aryan invasion as well as supporting the hypothesis of an ancient ethnic association between India and the West. But what is the evidence for the antiquity of Indo-European languages in India extending over only 3500 years? Might not this language stock be of much greater antiquity in South Asia? If this were the situation, then no major linguistic changes occurred, certainly not as a result of invasions. On the other hand, should it be proved one day that Indo-European languages came to India through later western influences via trade contacts with Iran and more distant parts of western Asia, the fact remains that at the time of the documentation of the lore of the Vedas into written form, the language used in these records may not accurately reflect linguistic similarities of an earlier period of time. That is, the transcription of oral accounts into Indo-European reflected the Indo-European features of the Indo-European language employed, not necessarily the language of the original Vedas. Once codified, it would have been an advantage for new hereditary social elites to associate the traditional literature with their own language, thus reinforcing claims to preferred social rankings.

One reaction to Shaffer's analysis comes from Erdosy (1989) who also notes that the Ṛgveda does not claim a foreign home for the Aryans, nor is there a hint that these people were invaders. They did regard themselves as distinct from other populations, but not as foreigners. Erdosy questions Shaffer's interpretation of the Harappan Civilisation as one without a social organisation based upon hereditary elites, centralised political government and warfare, and that these were the attributes reflected in the Vedic accounts. Rather, he seeks to define the Aryan presence, or ethnicity, on the basis of the interaction of the *āryas* (a term he prefers for designating the authors of Vedic hymns) with other ethnic groups. This leads him to conclude that Shaffer is mistaken in seeing the *āryas* as an emerging stratified society since the passages of the Ṛgveda indicate that *ārya* and *dāsa* were only horizontal social divisions with groups occupying separate territories in northwestern India. Both *ārya* and *dāsa* communities shared a complex social organisation, were divisible into tribes ruled by chiefs, were patronymic, shared a similar economy of pastoralism and agriculture, and spoke dialects that were mutually intelligible in certain instances. Physical differences may not have been significant, if even present, and the Aryan designation of black-skinned *dāsas* may refer to the association of darkness, evil and chaos of enemies and the light, virtue and order of their own ethnocentric view.

Interaction of *āryas* and *dāsas* may have taken the form of armed conflict and quest for booty, but in certain cases *dāsas* participated in conflicts sparked by the rivalry of *ārya* tribes. Aryan culture came to predominate the northwestern sector, and with the expansion to the Gaṅgā and eastwards the Vedic period closes in the sixth century B.C., with a gradual incorporation of ethnic groups into a state-controlled system and formalisation of appropriate behaviours for different social strata. Since cities are not mentioned in the Vedic accounts, Erdosy concludes that the hymns were composed after the fall of the Harappan Civilisation, a period that approximates the 1500 B.C. date proposed by Max Müller from different sources. However, some elements of Harappan culture may have survived among the later inhabitant of the "Land of the Seven Rivers" as the Aryans called their home in the Panjab, as with the veneration of fire at altars at Lothal and Kalibangan and the Aryan representation of fire in their god Agni. It was the configuration of cultural features shared by the inhabitants of these post-Harappan communities into a unique ideology, rather than physical appearance that eventually set the Aryans apart from their neighbours for reasons still unknown. "Aryanisation" and political dominance were achieved through the cultural absorption of *dāsas* into the Aryan ethos, according to this scholar.

In 1987 *Archaeology and Language: The Puzzle of Indo-European Origins* was published (Renfrew 1987, 1988). Its author, disturbed by the trend in modern western scholarship to equate supposed social groups speaking a national prehistoric language with archaeological entities, or cultures, defined from the material record, focusses upon methodological issues and proposes models that he believes more realistically represent relationships between peoples, languages and archaeology. He gives particular attention to Indo-European languages since they belong to the first group of languages to be recognised as such in 1786, and to early models for language change, such as the tree- and wave-models, which were based upon what had been written about the speakers of Indo-European languages. He notes that the tree-model involves divergence of populations with the result that new dialects and languages are formed when contact from some centre of origin is broken. Formation of new branches on the linguistic tree imply a physical disruption, hence migration theory has played a major role in this theory, as demonstrated by the tradition of the Aryan homeland and movements of Indo-European speakers away from their *Urheimat*. The wave-model, introduced in 1872 by Schmidt holds that linguistic changes originate as innovation waves radiating from some centre of linguistic innovation but without movements of people. A frequent archaeological response to one or other of these models has been to assign a particular archaeological culture or ceramic style to a specific group of people assumed to be speakers of a particular language (Kossina 1902). Thus the diffusion of a decorative style or technique was interpreted as the migration of its manufacturers, such as Childe's placement of the Aryan

homeland in the western Russian steppes north of the Black Sea, whence migrations extended eastward to the Indus and westward into Europe where traces of the demographic event are preserved in the widespread European Neolithic culture of the Corded Ware and Bell Beaker cultures. Gimbutas has followed the same model with respect to Kurgan invaders.

What Renfrew brings to these theories is the hypothesis that languages do not change in isolation, but because their speakers belong to societies experiencing change of a social and economic sort. He accepts the proposition that these changes may be documented in the archaeological record. He favours a processual approach in which emphasis is put upon processes of change in social, economic and demographic frameworks rather than upon mass invasions of self-contained ethnic groups. This may come about by the diffusion of a new technology or new mode of subsistence, such as the introduction of farming, with the result that the importers of these new skills and ideas may move into a territory and expose the earlier inhabitants to a different language that may later dominate the region. Language change may also occur through the arrival of small groups of well organised conquerors or traders who establish an elite social enclave which, if possessing a language different from that of the region, may succeed in replacing the language of the earlier inhabitants. Also, when there is social collapse of early state organisations, local movements of people from the periphery of the former sphere of influence may fill the vacuum and impose their languages on the territory. In reviewing the likelihood that any of these demographic events took place with respect to Indo-European language distribution, Renfrew concludes that it was the subsistence model that can be most firmly supported since there is ample archaeological evidence for the spread of farming into Europe from the Anatolian peninsula after 7000 B.C.. Once established, agricultural communities would increase in size over surviving hunter-gathering communities, and the practice of shifting agricultural fields in a random pattern across Europe could have covered the continent within a single millenium (Zvelebil 1986).

With reference to South Asia, Renfrew believes that Indo-European languages were already well established in the Harappan Civilisation. The linguistic situation at Mehrgarh in Baluchistan is less certain, but if early farming was indigenous to South Asia, it may have been pastoralists from the Russian steppes who introduced Indo-European languages to that region. Renfrew does not accept the venerable notion of an Aryan invasion nor the scenario described by Wheeler with respect to the causes of the decline of the Harappan Civilisation, observing that comparable myths involving language distribution occur among Aegean archaeologists seeking to document the arrival of Greek to their area of research. If the belief of some common Indo-European heritage of Vedic India, Homeric Greece and late Celtic Ireland is now understood to be a myth, it is more appropriate to conceive that all three culture areas evolved during the pe-

riod of the European Iron Age into societies from quite different predecessors, not all from reputed Aryans.

Although Renfrew has his critics, both in archaeological and linguistic circles, his thesis that Indo-European languages had a homeland in eastern Anatolia finds support from the Soviet linguists Tomas V. Gamkrelidze and Vyacheslav V. Ivanov (1990). They believe that the proto-language arose in the crescent that curves around the southern shore of the Black Sea, south of the Balkan peninsula and across the area from modern Turkey to the Caucasus mountains. The development of agriculture created the food surplus that was the impetus for Indo-European speakers to found villages and cities from which, by 6000 years ago, they migrated to Europe and across the Iranian plateau to the Indian Subcontinent and western Central Asia. By 2000 B.C. these people established the Hittite domain of Anatolia that survived until 1400 B.C., its official language being the first to find its way into a writing system. Some of the early script was in cuneiform tablets found at Hattusas north of modern Ankara. By the fourth millenium B.C. the daughter languages had formed and such were the bases of modern Indo-European languages in Europe today. Indo-European languages of India may have derived from the language spoken in the Mitanni kingdom of southeastern Anatolia in the middle of the second millenium B.C.. These reconstructions are based upon phonological changes where sound shifts are cited to document diverging pathways of linguistic transformations. Aspects of reconstructed vocabulary include insights into agriculture, the landscape of the speakers of the Indo-European proto-language, and other cultural and environmental features. Archaeological evidence is also brought into the arguments of these Russian linguists, although there is no specific archaeological culture identifiable with the first speakers of Indo-European.

Conclusions

Whatever the merits of recent challenges, faith in the Aryan presence is still deeply rooted in the minds of many distinguished archaeologists both in South Asia and in the West. This is emphatically demonstrated by the following statement appearing in the 1982 edition of the Allchins's book, *The Rise of Civilisation in India and Pakistan* :

> We would like to insist that the arrival and spread of the Indo-Aryan languages must have been associated with the movement of Indo-Aryan speaking people, and that their relations with the populations they encountered must be conceived as a dynamic process of culture contact, producing a variety of cultural responses. This process must have continued over many centuries. Its result was to produce a cultural synthesis which we may refer to culturally as Indo-Aryan, that is a synthesis of Indus or Indian, and Aryan elements. (Allchin and Allchin 1982: 299)

Affirmations as emphatic as those voiced by the Allchins ensure that the search for the Aryan presence in linguistic and archaeological sources will survive for some time to come. However, biological anthropologists remain unable to lend support to any of the theories concerning an Aryan biological or demographic entity within the contexts of linguistics and archaeology.

The presence of Indo-European languages in South Asia is a fact. Vedic texts are indisputable sources of Indian culture history. What is not certain is that: 1) specific prehistoric cultures and their geographical regions are identifiable as Aryan; and 2) that the human skeletal remains discovered from reputed Aryan burial deposits are distinctive in their possession of a unique phenotypic pattern marking them apart from non-Aryan skeletal series. What the biological data demonstrate is that no exotic races are apparent from laboratory studies of human remains excavated from any archaeological site, including those accorded Aryan status. All prehistoric human remains recovered thus far from the Indian subcontinent are phenotypically identifiable as ancient South Asians. Furthermore their biological continuity with living peoples of India, Pakistan, Sri Lanka and the border regions is well established across time and space.

There is a variation within this South Asian phenotypic pattern, of course, and clinal patterns for anatomical, serological, and genetic frequencies across the landmass of the subcontinent are familiar to biological anthropologists conducting research in this part of the world. While trait distribution maps may suggest the existence of sharp borders between variables, in reality their gradations over the landscape are well documented. If invasions of exotic races had taken place by Aryan hordes, we should encounter obvious discontinuities in the prehistoric skeletal record that correspond with a period around 1500 B.C., the proposed time for the disruptive demographic event. Discontinuities are indicated in our skeletal data for early Neolithic populations in Baluchistan and for early Iron Age populations in the Northwest Frontier region, events too early and too late, respectively, to fit into the classic scenario of a mid-second millennium B.C. Aryan invasion.

Our data do not preclude the possibility of micro-evolutionary shifts in prehistoric populations due to one-way gene flow from small enclaves of people entering South Asia from the Borderlands. But a gradual infiltration of foreigners hardly constitutes an invasion, nor is there reason to believe, on the basis of the present skeletal record, that this model of small-scale migration involves the advent of a new and different phenotypic pattern into the subcontinent.

Assumptions that blondism, blue-grey eyes and light skin pigmentation are physical hallmarks of either ancient Aryans or of members of brahman and other social groups in modern South Asia tracing their origins to them, find their origins in the improper marriage of excerpts from Vedic texts with nineteenth century Germanic nationalistic writings. Today the northwestern sector of the subcontinent contains populations of widely varying social groups which

share the genetic variable for reduced melanogenesis with its phenotypic expressions of lighter-coloured hair, eyes and skins. These pigmentation variables distribute as clines across southern, central, and western Asia, with lowest melanogenesis in northern Europe. To select pigmentation as a hallmark of a specific social group in India is to overlook the fact that lighter pigmentation variables appear elsewhere in the world where Aryan roots are irrelevant. Furthermore, the brahmans of peninsular India share the darker pigmentation features of their macropopulations, hence with enclaves of lower castes, just as they share other phenotypic traits with their immediate neighbours to a greater degree than they share with member of their caste in northern India. Since brahmans are themselves a physically non-identifiable caste, which one of their enclaves is derived from the *ārya* ?

The quest for the elusive Aryans lies far outside the agenda of present-day skeletal biologists, who acknowledge the fall of the biological race concept in their discipline. Racial palaeontology went defunct in the middle part of this century when botanical and zoological systematists recognised that the subspecies concept was invalid for all organisms. Our skeletal series do not sort into "types" along biological, linguistic or cultural lines because we are looking at adaptive responses to stresses in different ecological settings over time. In short, evolution precludes a static state in which ancient races are frozen in time to be "living fossils".

These developments in the biological sciences are of little interest to our colleagues in other research areas for whom the Aryan presence remains a vital issue. At best, the skeletal biologist familiar with the record of human remains from South Asia can respond by asking "How could one recognize an Aryan, living or dead, when the biological criteria for Aryanness are non-existent?"

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Madhav M. Deshpande

3. Vedic Aryans, non-Vedic Aryans, and non-Aryans: Judging the linguistic evidence of the Veda

Introduction

1.1. At the very outset of my paper, I would like to clarify my point of view. I am not an archaeologist. I do consult research in archaeology, but I claim no expertise in evaluating it. I will strictly represent the point of view of a Sanskritist and a linguist. In 1977-78, I published an article, "Some aspects of Pre-Historic Indo-Aryan". Arguments from this article were incorporated into a more extensive study, "Genesis of Ṛgvedic Retroflexion: A Historical and Sociolinguistic Investigation", which was published in 1979. While these two pieces dealt with primarily linguistic matters, I have also treated certain ethnographic issues relating to ethnic intermixture and identity retention in an article titled "Aryans, Non-Aryans, and Brāhmaṇas: Processes of Indigenisation," which is to appear in the *Journal of Indo-European Studies.* In my presentation at this conference, I will try to pull together issues and arguments from my own previous and ongoing studies, as well as from more recent studies by other scholars, and add some of my latest thinking on these matters. I will restrict myself to the earliest period of Indo-Aryan languages, though references to later periods are obviously unavoidable.

Nature of Linguistic Evidence

2.1 Focussing our attention on the available material we must keep in mind the following points. The oldest extensive linguistic data in the Indo-Iranian branch is represented by the Ṛgveda (dated since the days of Max Müller to somewhere between 1500-1000 B.C.). They are followed by the Mitanni treaties, dated much more securely to the 14th century B.C.. Afterwards, we have the Avestan and Old Persian materials. Finally, we may also list the Prakrits as seen in Aśokan inscriptions. These materials are not always available to us in their pristine,

original form. While the Mitanni documents, the Old Persian documents and the Aśokan edicts, coming from inscriptions as they do, are frozen in time, that is not the case either with the Ṛgveda or with the Avestan texts. These have been subjected to a long oral tradition before they were codified, and the texts available to us represent a state of affairs at the end of this long oral transmission, rather than at the starting point of their creation. As we deal with possible contact languages or language-families in this area, we are dealing with equally uneven materials. It is not always clear what the linguistic form of the Austric languages was during the period of the Ṛgveda. With the Dravidian languages too, we do not have the actual linguistic material contemporary with the Ṛgveda, but we must deal with the reconstructed stages of Dravidian. Even if one accepts the identification of the Indus Valley people with Dravidians, and the language of the Indus Valley inscriptions as a form of Dravidian, we know precious little about the actual language to compare it with another. Thus, when we consider this ancient period, the period of the Ṛgveda and beyond, we are dealing with apples and oranges, actual language materials and reconstructed texts and states of languages. Since this is the nature of the material we possess, we have to make the best of it. However, we must keep this complexity and unevenness of materials in mind.

2.2 Focussing on the Ṛgveda alone, we find that there were numerous stages in which this material was created, collected, collated, edited and preserved. The oldest books of the Ṛgveda are the so-called family books, namely Books 2 through 8, and the organisational principles of the text (in the Śākalya version) are as follows:

Maṇḍala	RV divided into 10 Maṇḍalas ("Chapters")
Anuvāka	Each Maṇḍala has several Anuvākas ("Sections")
Sūkta	Each Anuvāka contains several Sūktas ("hymns")
Ṛk	Each Sūkta contains several Ṛks ("verses")

Maṇḍala	**Anuvākas**	**Family of Sages**	**Theme**
1	24	Miscellaneous	Miscellaneous hymns
2	4	Gṛtsamada	Hymns to a Set of deities
3	5	Viśvāmitra	- do -
4	5	Vāmadeva	- do -
5	6	Atri	- do -
6	6	Bharadvāja	- do -
7	6	Vasiṣṭha	- do -
8	10	Kaṇva +Miscellaneous	- do -
9	7	Miscellaneous	Hymns to Soma
10	12	Miscellaneous	Miscellaneous hymns

2.3 It is clear that the hymns included in the family books (= Books 2-8) are composed by members of those specific priestly families. However, each family book represents a collection of hymns produced by several generations, both young (*nūtana, navya*) and old (*pūrva*). We would expect this language to change somewhat from generation to generation. Then the hymns in each family book are organised in terms of the deity to which they are addressed and the number of verses in the hymns. This organisation reflects the activity of the editors of the entire collection of the Ṛgveda, rather than the activity of the particular priestly families, because the same principles are found in all the family books. Thus, it is clear that the editors homogenised the received hymns to a certain extent. Also consider, for instance, the following fact: it is clear that Vasiṣṭha and Viśvāmitra are bitter enemies, who curse and accuse each other in their hymns. Their descendants cannot marry each other even today in India. Thus, it is inconceivable that the hymns of these two families could be placed in a common collection. However, the fact that they are placed in the Ṛgveda as two family books indicates that the time gap between the composers of the hymns and the collectors, editors, and collators was quite large. This gap must have been long enough to lead to a kind of imposed homogenisation. Whatever linguistic differences do survive in the Ṛgveda are a mere fraction of the real differences which must have existed in the original compositions.

The Ṛgveda thus represents a collection of hymns by priests of several different families, several different generations of those priests, and several families in bitter conflict with each other. As is clear from the hymns, the Ṛgvedic tribes are not united among themselves. The Aryan tribes are warring among themselves and against the non-Aryan *dāsas*. Some Aryans are allied with the *dāsas*, while others are not. All this would lead us to expect far greater linguistic diversity than what we actually find in the existing text. I do not mean to underestimate the value of linguistic diversity detected in the Ṛgveda by scholars like Pinault (1989), Pirart (1989) and Elizarenkova (1989), but would also like to assert that this diversity is only what has survived the homogenising effects of the unifying editorial activity and does not reflect the total amount of diversity in the lost original texts. This complexity of the linguistic evidence gets further compounded when we realise that Śākalya was only one of the editors of the Ṛgveda, and that his recension represents only one of several. We know that Śākalya based his recension in part on the earlier recension of Māṇḍūkeya which was prevalent in the northeastern region of Magadha, while the original Ṛgvedic hymns were composed in the northwestern region. The Māṇḍūkeya recension, which is not available to us, reportedly had different rules for euphonic combinations, and differed in the amount of retroflexion from some other contemporary recensions. For later Vedic Saṃhitās, such as those of the Atharvaveda, Yajurveda, and Sāmaveda, we are in possession of several different recensions. However, only one recension of the Ṛgveda has survived. Thus, the linguistic conclu-

sions based on the language of the received Śākalya recension need to be reexamined by keeping the above facts in mind.

A further dilemma is posed by Śākalya's recension itself. Unlike the contemporary version, that known to Pāṇini did not have the retroflex consonants *ḷ* and *ḷh* for intervocalic *ḍ* and *ḍh*. To me it seems most likely that Śākalya's recension itself underwent some gradual phonetic changes in different regions and periods. Thus, when we refer to linguistic evidence from the Ṛgveda, we need somehow to keep in mind all these problems. My own conclusion regarding retroflexes in the Ṛgveda is that the original compositions were either free from retroflexion of fricatives, liquids and nasals or that those sounds had only marginal retroflexion. The retroflexion we see in the available recension of the Ṛgveda is a result of the changes which crept into the text during centuries of oral transmission. I have argued my case in detail elsewhere (Deshpande 1979b) and need not enter into a longer argumentation here.

Vedic Aryans, Non-Vedic Aryans, and Non-Aryans

3.1 Several problems concern us regarding the migration of Aryans, and about the identity of the non-Aryans they met in India and before reaching India proper. Theories abound and the following is a brief sample, based on linguistic evidence.

3.2 Hoernle (1880: xxx-xxxii) postulated the existence of two early Aryan groups in North India, the Māgadhan and the Śaurasenī, representing waves of Indo-European language speakers, of which the Māgadhans were the older. This idea was supported by Grierson (*Imperial Gazetteer of India*, 1: 353-359) and given an ethnological footing by Risley (1915: 55). Oldenberg also supported and elaborated this idea and pointed out that "probably the first immigrants, and therefore, the farthest forward to the east ... are those tribes ... the Aṅga and the Magadha, the Videha, the Kośala, and Kāśī."[1] He (1890: 9) also claims that it was the second wave that produced the Vedas. This theme has been linguistically upheld by Meillet who shows that the Vedic dialect, like the Iranian, is an *r*-only dialect in which the Indo-European **l* merged into *r*, but the dialect of the redactors of the Vedas was an *r*-and-*l* dialect, where the original Indo-European **r* and **l* were retained; the redactors of the Vedic texts have put this *l* back into some of the Vedic words, where the original Vedic dialect had an *r* (Meillet 1912-13; Bloch 1970: 2). In later Prakrits we clearly see the eastern Prakrit, Māgadhī, developing into a pure *l*-only dialect; whereas the western and particularly

[1] Oldenberg (1890, 1882: 9). He also points out (*Ibid*: 10-11) that the river Sadānīrā was the dividing line between the Vedic Aryans and the outlandic Aryans. The sacrificial fire had not crossed to the east of it.

the northwestern dialects, almost devoid of *l*, represent the early *r*-only dialect (Mehendale 1948: 297).

3.3 We should explore the difference between the *r*-only dialect, and the *r*-and-*l* dialect (and possibly an *l*-only dialect) further. Burrow (1972: 535) provides a perceptive analysis of this issue:

the *r*-dialect prominent in the early Ṛgveda shares a common change (of *s* -> *ś*) with Iranian. It is unlikely to have undergone this change independently and consequently we must assume that it took place when a group of Indo-Aryan migrants was still in contact with Iranians. .... On the other hand, those Indo-Aryans who preserved the difference between *r* and *l* had already departed to India, and so they were unaffected by it. The speakers of the *r*-dialect were the latest comers on the Indian scene and there ensued a mixture of the two dialects.

This is an important proposal. as it suggests that there was a branch of Indo-Aryan which, like the parent Indo-European, had retained the distinction between *r* and *l*, and that this branch came into the region of Iran, and later into India, before the migrations of the standard Indo-Aryan branch. Burrow's 1973 article, entitled "The Proto-Indo-Aryans", displays a further refinement of his ideas. In this study, Burrow proposes that there was a common Indo-Iranian homeland of the Proto-Aryans in northern Iran. He suggests that ancestors of Iranians and Indo-Aryans lived together in this common homeland. Then, at first there was a southward migration of the ancestors of the Indo-Aryans, or Proto-Indo-Aryans. The Proto-Indo-Aryans spread both eastward to India and westward toward the Near East. Then came the second southward migration, that of the Proto-Iranians. The migration of the Proto-Iranians split the Proto-Indo-Aryans from their Western branch, those who are eventually represented in the Mitanni documents. In this scenario, all three groups - the Proto-Iranians, the Western branch of the Proto-Indo-Aryans and the Eastern branch of the Proto-Indo-Aryans - represent the *r*-only dialects of common Indo-Iranian heritage. The Eastern branch is represented by the Ṛgvedic Aryans. The Western branch of the Proto-Indo-Aryans represented in the Mitanni documents is also an *r*-only dialect. This is clear from the following epithets of horses cited by Burrow (1973: 123) and Parpola (1988: 196):

Mitanni	**Vedic**	
papru-nnu or *babru-nnu*	*babhrú-*	"brown"
pinkara-nnu or *binkara-nnu*	*piṅgalá-*	"reddish brown"
paritta-nnu or *baritta-nnu*	*palitá-*	"grey"

In these examples, the Mitanni-Aryan dialect has *r* even where the Vedic words have an *l*. How about the *r*-and-*l* branch of Indo-European which presumably reached India before the Ṛgvedic Aryans? Where did they come from? Did they reach India via Iran? If so, did they leave any trace of themselves in Iran? Were the speakers of the *r*-and-*l* dialect of Pre-Vedic Indo-Aryan a totally diffe-

rent branch from the Indo-Iranian? These are difficult questions. Parpola (1988: 247) suggests that "The change *l* -> *r*, which characterises the common proto-language of Ṛgvedic and Avestan, seems to have taken place relatively late in Proto-North-Aryan, since it has not reached peripheral dialects, including Ossetic and a number of Pamir dialects within East Iranian. Several etyma suggest that Proto-Nuristani retained the original PIE *l*; others attesting to the change *l* -> *r* are probably early loanwords from Proto-Dardic (i.e., Proto-Ṛgvedic). The nearly 1,900 Iranian proper names in the Persepolis tablets contain possible traces of an *l*-retaining dialect in western Iran in the early fifth century B.C.". Anyway, one would still have to assume the entry of *r*-and-*l* dialects of Indo-Aryans into India before the arrival of the Ṛgvedic Aryans to account for the fact that *r*-and-*l* dialects in India were more easterly in relation to the Ṛgvedic dialect.[2]

3.4 The significance of the *r*-and-*l* dialect moving earlier into the interior of India and eventually on to eastern areas like Magadha (where dialectally *r* -> *l*) is further enhanced by its connection with the operation of Fortunatov's Law. The law states that in the group PIE **l* + dental, in Sanskrit the *l* is dropped and the dental is changed to a cerebral (cf. Skt. *paṭa*- "cloth", OSlav. *platino*, Russ. *polotno*). Here an original Indo-European cluster yields a single retroflex, while *r* + dental in Middle Indo-Aryan always results in a cluster, dental as well as retroflex (cf. Skt. *vartate*, Pkt. *vaṭṭai* beside *vattai* - Burrow 1972: 531). The particular connection of Fortunatov's Law with *l*-clusters means that it cannot apply in dialects such as Iranian and Ṛgvedic Sanskrit, where every PIE * *l* -> *r*. Burrow (*Ibid*) has defended Fortunatov's Law and tried to date the beginning of its operation on the basis of the Ṛgvedic world *gáldā* - "dripping, flow", beside the *r*-dialect form *gárdā*-. The fact that *gáldā*- is still found in the Ṛgveda, while later Sanskrit has the derived root *gaḍ*, implies, according to Burrow (1972: 542), that "the change according to Fortunatov's Law took place during the period of the early Ṛgveda, so that it was possible for one form antedating that change to be preserved in that collection."

Be that as it may, one can ask the following question: Was Fortunatov's Law purely an internal development, or was it a result of Aryan-non-Aryan contact and/or convergence? In any case, it seems that the *r*-and-*l* dialect did not

[2] This is the general argument, unless of course one subscribes to a possible alternative that the first wave produced the Vedas, and that a second wave of non-Vedic Aryans pushed through the northwestern settlements of the Vedic Aryans and migrated further into northeastern areas. Chanda (1916: 59) argues that "the Indo-Aryans of the outer countries originally came from an ethnic stock that was different from the stock from which the Vedic Aryans originated." However, for him the second wave of post-Vedic Aryans bypassed the "inner" Vedic Aryans and went into the outer regions. Chakladar (1928, 1961-62) argues that the second wave of post-Vedic Aryans pushed the Vedic Aryans into the outer lands and itself occupied the inner lands. However, these are minority views, and not supported by linguistic or archaeological evidence.

undergo Fortunatov's Law in Iran, as there are no traces of retroflexes in Iran. The effect of Fortunatov's Law is observed only in India. This raises a number of interesting linguistic questions. The arguments alluded to by Parpola (1988) and others would suggest that the Aryans came into contact with non-Aryans, perhaps Dravidians, already in Iran. However, Fortunatov's Law seems to have gone into effect only in India. It could suggest several possibilities. It is possible that the non-Aryan communities in Iran did not speak a retroflexed form of language. Another possibility is that the contact with non-Aryans in Iran was not powerful enough to affect the phonology of the Aryan dialects. One may also speculate whether Dravidian itself acquired retroflexion after entering India through contact and convergence with pre-Dravidian populations. The theory which considers Dravidian to be a sub-branch of the Nostratic family also needs to account for the emergence of retroflexion in Proto-Dravidian. Thus, it would seem that while the Aryans did indeed come into contact with different sorts of non-Aryans in Iran before reaching India, the retroflexing influences seem to have begun only in India. Thus, we may need to make a distinction between retroflex-speaking non-Aryans versus non-retroflex-speaking non-Aryans, and to consider the possibility that Dravidians themselves may have acquired this habit in India through convergence with pre-Dravidians.

3.5 Then, consider the next problem. If Fortunatov's Law applied only to an *l*-retaining dialect of the pre-Vedic Indo-Aryans, and if at least a partial motivation for that law lies in contact and/or convergence with non-Aryans, then what happened to the *r*-only dialects of the Indo-Iranians? Did they come into contact with different non-Aryans? Was it not a retroflexing influence? From the absence of retroflexes in Iranian we can certainly infer that the linguistic influence the Aryans received in Iran from non-Aryans did not include retroflexion. This would apply equally to the *r*-only and to *r*-and-*l* dialects. The retroflexing influence begins as the Aryan dialects enter India. Even here, however, the *r*-and-*l* dialect seems to have undergone greater retroflexion, perhaps due to its longer stay in India as compared to the *r*-only dialect of the Ṛgveda.

3.6 Where in India was the brunt of the retroflexing influence?[3] Since the *r*-and-*l* dialects are generally attested from the eastern part of north India, and the *r*-only dialects from the northwestern part, one can make an additional dis-

[3] Professor Peter Hook (pers. comm.) suggested that of all Indo-Aryan languages, retroflexion seems to be the strongest in the Shina language of Gilgit. However, we have no information for the ancient period comparable to the Ṛgveda or even Aśoka. It is often hazardous to extrapolate from modern language data any conclusions about ancient periods. For instance, Burušaski, as we know it, has retroflexes, but we do not know if it acquired those through contact with Indo-Aryan or Dravidian (See Morgenstierne's Preface to Lorimer 1935, p. xxiii). Also contrast Southworth, who (1974: 211-12) concludes that the strength of retroflexion was greater in the northwest and in the south and that it was weaker in the northeastern region. However, this is based on counts from modern languages. For a discussion, see Deshpande 1979: 244.

tinction. The strong retroflexing influence seems to come in as the Aryan dialects move into the eastern parts of northern India, but this retroflexing influence does not seem to make its presence felt as much in northwestern India.

3.7 The fact that the *r*-only dialect of the northwest and the *r*-and-*l* dialect (and possibly the *l*-only dialect) of the northeast underwent different developments with respect to retroflexion can be demonstrated by referring to early inscriptional Prakrits. In particular, Mehendale's monumental *Historical Grammar of Inscriptional Prakrits* throws a flood of light on this problem. Mehendale (1948: 18) points out that cerebralisation of dentals in the environment of *r* is predominant in the eastern inscriptions, but "it will be observed that the western dialect is the least affected by cerebralisation." Bloch (1970: 6) and Burrow (1936: 419, 421) also emphasise this point. Burrow (1936: 421) further points out that even within the northwestern region, the Niya Prakrit in the further west preserved *r*+dental clusters better than the northwestern Aśokan inscriptions. He concludes that, phonologically, the language of the former presents a pronouncedly more archaic aspect than that of Aśoka's edicts, namely by better preserving such consonant combinations as *rt*, *rdh*, etc. Burrow's conclusion is extremely significant (1936: 422):

> Obviously we cannot derive the Niya Prakrit from the language of Aśoka, and the most natural conclusion to draw from the fact that phonetically it is better preserved is that its home is to be sought further to the west. Because it seems clearer (then as now) that the more remote a language was in the direction of the North-West the less liable it was to phonetic decay.

This also raises a serious dilemma for our understanding. If the *r* + dental clusters in the Northwestern dialects of Indo-Aryan are retained without change, could it be because they are somehow inherently immune to such a change? That seems unlikely because these same clusters are changed to retroflexes in the Northeastern dialects. Consider the Sanskrit forms *vartate* and *vardhate* corresponding to the Prakrit *vaṭṭati* and *vaḍḍhati* cited by Patañjali. Here we would expect the northwestern dialects to retain the clusters *rt* and *rdh*, but they are changed to *ṭṭ* and *ḍḍh* in the Eastern Prakrits. This would suggest that the *r*+dental clusters were not in principle immune to the retroflexing influence, but that this influence was not strong in the northwestern region. Assuming that the retroflexing influence implies some sort of strong contact and/or convergence with a population speaking retroflexed languages, such a contact was substantially weaker in the northwestern region. This does raise a suspicion in my mind: could the non-Aryan languages the Aryans encountered in the northwestern region have had retroflexed sounds? Can we think of Dravidians of the northwestern region without retroflexion in their language? I do not have a clear answer to this dilemma at this time.

3.8 This poses many complicated problems in our understanding of the contact and/or convergence of Aryans with non-Aryans in different parts of

India, and outside India. One thing seems to be clear. The contacts with non-Aryans outside India did not lead to retroflexion either in the Indo-Iranian dialects, or in the pre-Indo-Iranian (*r*-and-*l*) dialects. The retroflexing influence was manifest in India. Even here it is manifest more in the eastern parts of north India than in the northwestern parts. Is it because there was less intense contact and/or convergence in the northwest? Or, is it because the non-Aryans in the northwest did not have retroflexion in their speech?

3.9 We may also refer to the problem of the origin of the retroflex sounds *ḷ* and *ḷh* for intervocalic *ḍ* and *ḍh* in Śākalya's recension of the Ṛgveda. Most scholars take for granted the existence of these sounds in the Ṛgveda. I disagree with this view. I think that, like other eastern retroflexes, *ḷ* developed when the Ṛgvedic recitational traditions moved eastward into North India. Evidence to support this possibility comes from inscriptional Prakrits where, as Mehendale (1948: 11) points out, the "change *ḍ* -> *ḷ* occurs in the non-Western groups." This shows that the change of *-ḍ-* to *-ḷ-* did not occur in the northwestern regions of India at the time of Aśoka. Pāṇini, who comes from the northwest and precedes Aśoka by about two centuries, does not have the sound *ḷ* in his Sanskrit. His rules concerning the Vedic language give no indication of the existence of the sound *ḷ* in the Vedic texts known to him. In fact, in rules like P.6.3.113 (*sāḍhye sāḍhvā sāḍheti nigame*) and P.8.3.54 (*iḍāyā vā*), he refers to Vedic usages such as *sāḍha* and *iḍā* without *ḷh* and *ḷ* for the intervocalic *ḍh* and *ḍ*. Pāṇini obviously knew Śākalya's Ṛgveda, and hence it is surprising to find him not recording the existence of *ḷ* in that text. Thus, even though we reconstruct these retroflex *ḷ* sounds in Proto-Dravidian, this sound does not manifest first in northwestern Indo-Aryan. This indicates that even if we assume the inhabitants of the Indus Valley to be speakers of some sort of Dravidian and that contact and/or convergence with them occurred in the northwest, it does not seem to have led to massive retroflexion in that region. The massive retroflexion appears in the central and eastern parts of north India, and then in the South.

Intensive and Extensive Bilingualism

4.1 We cannot deny that the incoming Aryan-speakers came in contact with certain non-Aryan people in India. There is ample evidence for such contacts. Emeneau (1974: 93) not only proposes that there was "extensive bilingualism", but that "Sanskrit was handed down at some early period by a majority of speakers who learned it as a second language, their first language being Dravidian." *However, it is impossible to believe that the majority of the composers of the Ṛgveda had Sanskrit as their second language and had some Dravidian language as their first language*. The existence of Prakriticisms in the language of the

Ṛgveda suggests that the colloquial language of the Ṛgvedic masses may be some early form of Prakrit, rather than Dravidian.

4.2 This does not contradict the existence of several words in the Ṛgveda which can only be explained as loan words from Dravidian and Muṇḍa languages. The loan words do indicate contact with non-Aryan peoples. However, even if one accepts the entire list of Ṛgvedic loan words provided by Kuiper, Burrow, and Southworth,[4] the total number of these words in the Ṛgveda is still not as great as the number of Indo-Aryan loan words in Tamil or Southeast Asian languages. Neither the Southeast Asian languages nor British English pick up retroflexion, in spite of borrowing a very large number of words from retroflexed languages.

4.3 Ananthanarayana (1970: 66) basically accepts the concept of bilingualism as proposed by Emeneau and Kuiper, but derives a slightly different conclusion: "It is suggested that in the first period of this contact bilinguals were recruited chiefly from the native population. Support for such an assumption is provided in the greater number of Sanskrit loans (in Dravidian languages) as opposed to an insignificantly small number of Dravidian words in Sanskrit." This would mean that more Dravidians accepted Aryan words than Aryans accepted Dravidian words. This also suggests that the initiative for adoption was more prominent on the part of the native non-Aryan than on the part of the incoming Aryan. *Thus, to account for retroflexion in Indo-Aryan, it is necessary to assume that a large number of speakers of Indo-Aryan were native Dravidians, rather than Aryans influenced by Dravidians as assumed by Kuiper* (1967). Kuiper himself (1958: 351) says that foreign words were "Sanskritised" in the process of being incorporated into Sanskrit: "Sanskritisation of foreign words by substitution of *tr, dra* (or *rt, rd*) for *ṭ, ḍ* is well attested in the classical language." He (Kuiper 1958: 352) carries this tendency farther back in the Ṛgveda: "The explanation of *kartá-* as a Sanskritisation of *kāṭá-* would seem to be rather the only one that is phonetically admissible according to our present knowledge." If one accepts Kuiper's explanation of *kartá-* <- *kāṭá-*, which is by no means certain, it would appear that the Ṛgvedic Aryans did think of *rt* as being more native to the Aryan tongue, and of *ṭ* as being somewhat foreign.[5]

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[4] Burrow (1968: 311) refers to twenty-five Dravidian loans in the Ṛgveda and says that "it is not many, compared with the number in later Sanskrit." Kuiper (1955) lists numerous additional non-Aryan loans in the Ṛgveda, but many of these are debatable. Also see Southworth 1979. Deshpande (1979: 301) shows that the Dravidian loan words pointed out by Southworth (1979) were de-retroflexed in the language of the Ṛgveda.

[5] Bloch (1965:58) thinks that *kāṭá-* is derived from *kartá-*. Referring to Bartholomae's attempt to connect *kāṭá-* and *kartá-*, Burrow (1972: 544) comments: "The connection of *kāṭá* with *kartá-* is anything but certain; it could have been a spontaneous cerebral and be connected to *kā́tu-* "hole" along with which it is listed in Nighaṇṭu 3, 23."

4.4 Emeneau did recognise this problem. Instead of saying that the Aryans interpreted allophones of Proto-Indo-Aryan in terms of the foreign, Dravidian phonemic system, he considered it more logical to assume that Dravidians interpreted allophones of Proto-Indo-Aryan in terms of their own native phonemic system in the process of adopting the foreign, Aryan language. In his excellent paper "Bilingualism and Structural Borrowing" Emeneau points out, as early as 1962 (p.434), that "the evident Dravidianisation of Sanskrit in some of its structural features must lead to the partial conclusion that a sufficient number or proportion of certain generations of Sanskrit speakers learned their Sanskrit from persons whose Dravidian linguistic traits were translated into Indo-Aryan and who provided the model for succeeding generations."

4.5 In his 1962 article, Emeneau proposed an essentially correct sociolinguistic process for the development of retroflexion in Sanskrit, but he was not sure of the exact chronology or of the intensity of this process with reference to early Vedic texts. Were Dravidians participating in a significant proportion in the use of Sanskrit in pre-Vedic times? At that time, he was not sure (1962: 434). In 1974, making essentially the same sociolinguistic argument, Emeneau (1974: 92) claims more confidently that such a process must have taken place before the composition of the Ṛgveda, and agrees with Kuiper that retroflexion in the existing Ṛgveda is an indication of pre-Ṛgvedic Dravidianisation of the Aryan language.

4.6 In order to be able to evaluate the arguments put forward by Emeneau and Kuiper to establish bilingualism between the Vedic Aryans and Dravidians, we must take into account a recent analysis of bilingualism by Nadkarni (1975: 681), who points out that:

> structural borrowing at all levels of language, including syntax (the so-called "deepest" level), can take place irrespective of the factor of social prestige, but solely as a consequence of "intensive and extensive" bilingualism with a certain time depth. ... By "extensive" bilingualism, I mean a situation in which bilingualism is co-extensive with the entire community, as in the case of **K**[annad] S[arasvat] **K**[onkani] speakers. By "intensive" bilingualism, I mean a situation in which a community whose mother tongue is language A is not merely conversant with language B, but actually uses it for a wide range of purposes in the course of normal, everyday living. Extensive bilingualism, in particular, seems necessary for structural borrowing to be stabilised, since it renders all the members of the community more or less equally receptive to influences and traits of the non-native language - which, first randomly, and gradually more and more regularly, find their way into the mother tongue. A linguistic innovation has a strong chance of stabilising itself in a language if it attracts no notice, and therefore no resistance from speakers, particularly in the early stages. This is possible only in situations of extensive bilingualism.

Kuiper's data, as well as the information on loan words supplied by Southworth, indicate "sporadic" bilingualism but are insufficient to demonstrate extensive or intensive bilingualism as defined by Nadkarni. I am pleased to report that Emeneau (1981: 469) now agrees with my suggestion that retroflexion in the exist-

ing recension of the Ṛgveda needs to be explained more in terms of an increasingly Dravidianised oral transmission of the text, rather than in terms of this trait being part of the language of the original composers.

Linguistic, Cultural, and Biological Identities

5.1 Since the terms "Aryan" and "Dravidian" have acquired a variety of different meanings, it may be helpful to sort out the terminological problem. We may formally state the following.

a) A person who speaks an Aryan language as his first language is linguistically speaking an Aryan person.
b) A person who considers himself to be a member of an Aryan (cultural) community and is accepted to be so by the other members is culturally speaking an Aryan person.
c) A person who is biologically speaking a member of a group defined to be Aryan on the basis of some physiological characteristics is biologically speaking an Aryan person.

5.2 A person could be Aryan in all those respects, or he could be Aryan only in some respect. For instance, from a purely linguistic standpoint, one can say that it is necessary to have a Dravidian speaker of Indo-Aryan in order to explain the emergence of retroflexion. This simply amounts to saying that a person who is linguistically Aryan, a speaker of a non-retroflexed form of language, is less likely to pick up retroflexion through contact with speakers of retroflexed languages, i.e. Dravidians. On the other hand, a speaker of a retroflexed language, a Dravidian speaker, is more likely to use retroflexes in adapting to an Aryan language. Here, we are using the words Aryan and Dravidian in purely linguistic terms. However, consider the case of a Kavaṣa Ailūṣa or a Vasiṣṭha in the Ṛgveda. Several modern scholars such as Kosambi (1965: 82-83) and Kuiper (1967: 87) have argued that these persons are non-Aryans recruited into the Brāhmaṇa communities. If that is the case, then we could perhaps say that these linguistically and ethnically Dravidian individuals culturally Aryanised themselves. Thus, it is possible to combine these various types of identities. This kind of distinction between cultural and linguistic Aryanhood is made even by Manu:

> Those communities in the world, which are not included among the com-munities born from the mouth, arms, thighs, and feet [of the creator, i.e., the four *varṇas*], are all considered to be non-Aryan, irrespective of whether they speak an Aryan or a non-Aryan language.[6]

6 *mukha-bāhūru-paj-jānāṃ yā loke jātayo bahiḥ|mlecchavācaś cārya-vācas te sarve dasyavo matāḥ|* Manusmṛti 10.45.

A person born to a non-Aryan female from an Aryan man may become an Aryan through his virtues. However, it is determined that a person born to an Aryan female from a non-Aryan man is indeed a non-Aryan.[7]

5.3 Manu does not consider it sufficient to be a speaker of the Aryan language for a person to be recognised as ethnically Aryan. Ancient Indian culture, in line with the inherited Indo-European idea of patrilineality, recognised a son of an ethnically Aryan man to be Aryan, without any regard to the identity of the mother. However, a son of a non-Aryan father was not acceptable as an ethnic Aryan. Such conceptions allowed racial intermixtures without the loss of ethnic identities. I have studied this phenomenon extensively in my forthcoming article "Aryans, non-Aryans and Brāhmaṇas: Processes of Indigenisation". This explains to a certain extent how there could emerge a large population which regarded itself as culturally Aryan, and yet had significant linguistically and ethnically non-Aryan elements in it. Consider the following charts showing the genealogy of Kṛṣṇadvaipāyana Vyāsa:

Father	**Mother**	**Father**
Brāhmaṇa	*Fisherwoman*	*Kṣatriya*
Parāśara	Matsyagandhā	Śantanu
Vyāsa (*Brāhmaṇa*)		Vicitravīrya (*Kṣatriya*)

Detailed Geneology of Vyāsa

Father	**Mother**
Brāhmanical Mitrāvaruṇa (Divinities)	*Non-Brāhmanical* Ūrvaśī (Nymph)
Vasiṣṭha	Arundhatī (Kṣatriya)
Śakti	Vaiśya woman
Parāśara	Matsyagandhā (Fisherman's daughter)
Vyāsa	

[7] *jāto nāryām anaryāyām āryād āryo bhaved guṇaiḥ / jāto py anāryād āryāyam anārya iti niścayaḥ* | Manusmṛti 10.67. Manu (10. 68) shows, that while he considers the child of an Aryan man born from a non-Aryan female as Aryan in some sense, he does not regard that child to be fully eligible for Aryan sacraments (*saṃskārya*).

It is my contention that the authors, at least of the Ṛgveda, are largely Aryan in linguistic, ethnic and cultural terms, mixed perhaps with a small number of "Aryanised" non-Aryans.[8] This is what is indicated by the fact that the few Dravidian loans one finds in the Ṛgveda are phonetically Aryanised (Deshpande 1979b: 301). By the time of the Late Vedic, Epic and Classical periods this "Aryanised" element was probably the largest segment among the users of Indo-Aryan languages. It is during this later epoch that one finds evidence for large-scale structural Dravidianisation of Indo-Aryan structures.

Disciplinary limitations and the need for caution

6.1 In the recent works of Parpola (1988), Fairservis and Southworth (1986) and others (listed exhaustively in Sjoberg 1990), there is a laudable effort to interface research in archaeology and linguistics. One can add studies of physical anthropology to this as well. Such conjoined reconstructions are indeed fascinating and necessary. At the same time, one needs to proceed with a great deal of caution. William Bright (1986) has sounded all the necessary notes of caution regarding linguistic inferences from archaeological evidence, and I need not repeat those. While these different disciplines do contribute to solving each other's problems up to a point, there remains a large residue of linguistic problems that are not soluble by archaeology and vice versa. The limitations of these disciplines need to be consciously recognised. Consider for instance the following narrative from Parpola (1988: 204ff):

> The arrival of the Namazga V people seems to have disrupted the political and cultural unity of the Indus Valley soon after 2000 B.C. ... The newcomers did not stop in the Harappan area, however, but pushed on further both into the Deccan and towards the Gangetic Valley.

I have no reason to doubt the veracity of this description. However, the point I would like to make is that such a description remains opaque at best to a linguist. Were the Namazga V people speakers of an Aryan language? Which variety of Aryan did they speak? Indo-Iranian, Proto-Iranian, Proto-Indo-Aryan, the *r*-only dialect or the *r*-and-*l* dialect? Was their language already influenced by their contact with non-Aryans? Did these non-Aryans speak a retroflexed language? There are numerous such linguistic questions which will perhaps always remain unanswered. One can make a leap from archaeology to linguistics, but, with the best expertise at hand, it is not always easy to judge if one has landed

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[8] Sjoberg (1990: 49): "The earliest of these, the Ṛgveda, stands somewhat apart from the others in terms of its mainly Aryan (i.e., Indo-European) content. Some non-Aryan (mainly linguistic) influence in the Ṛgveda can be discerned, but a non-Aryan component seems more apparent in the later Saṃhitās."

on the right target. I should also hasten to say that we may encounter the same problem when going from linguistics to archaeology.

6.2 Finally, I would just like to list issues which are of concern to a linguist such as myself. These need to be addressed as fully as possible to reach a satisfactory resolution of linguistic problems.

1. The Vedic texts as we have them are the end product of a long oral transmission. Any conclusions based on their linguistic features need to take into account the possible linguistic changes that may have crept into the text during this process.

2. We need to distinguish language and social contact from language and social convergence. Evidence for the first does not necessarily imply the second. We cannot have convergence without contact, but we can have contact without convergence.

3. When we speak of bilingualism we need to make a distinction between sporadic, intensive, and extensive bilingualism. These different types may possibly lead to different linguistic consequences.

4. Whose linguistic output is available to us as evidence in the Ṛgveda? Do we have Aryans influenced by Dravidians, or Dravidians influenced by Aryans? Is there any place for the polarity between Aryanised Dravidian versus Dravidianised Aryan, or is there a homogenised result due to convergence with the resultant loss of polarities?

5. Linguistic, biological, and cultural identities must be kept separate for our analytical purposes. There is also a difference between identity as defined or assumed by a person for himself as against that person's identity in the eyes of others. In classical India, the orthodox Brāhmaṇas, Jains and Buddhists created parallel, but conflicting notions of "Aryan" (See: Deshpande 1979a).

Keeping these notes of caution in mind, we can indeed proceed with our interdisciplinary adventures. While we are not assured of indubitable success, we can indeed be assured of the thrills and excitement of conceiving new possibilities and probabilities.

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Michael Witzel

4. Early Indian history: Linguistic and textual parametres

The Problem

During the last 60 years the writing of the early history of South Asia has suffered from several flaws; political, and large sections of social, history above all, remain to be adequately treated. To begin with, archaeological discoveries of the past few decades remain to be evaluated against the background of the texts composed in this period, i.e. the Vedic texts. The only exception to this trend has been W. Rau (1956, 1983), who systematically collected from the Vedic texts data on material culture that provide possible clues that might illuminate or adumbrate archaeological materials. Unfortunately, as his publications are in German, they have made little impact on the discussion of early South Asian history. Although his work has been heavily drawn upon by Kulke (Kulke and Rothermund 1986), thereby making it somewhat more accessible to English audiences, I think that much can be added to the picture presented by both Rau and Kulke, which is one of the reasons for my contributions to the present volume.

A second reason is that, generally, historians have not taken notice of what has been going on in Vedic studies during the past few decades, even though Vedic texts represent the only contemporary literary sources for most of early Indian history. This may be explained by the perception that Vedic texts provide little concrete information. For example, Keith (1921), in his chapters in *The Cambridge History of India*, narrated a few disparate facts first collected in *The Vedic Index* (Mcdonell and Keith 1912), but thought that the data did not amount to much that could be used for a reconstruction of the history, especially political history, of the period. The other side of the coin, to mirror Keith's conservatism, is provided by the *History and Culture of the Indian People* (Majumdar and Pusalker 1951) composed under the auspices of the Bharatiya Vidya Bhavan. Although its authors acknowledge the later date of the composition of the Purāṇas, and the much earlier date of the Ṛgveda, they use both, as well as the Mahābhārata, on an equal footing. This results in the use of totally disparate sources, spanning the period between the late 2nd millennium B.C. and the late 1st millennium A.D., to describe events of the Vedic period.

Even the latest histories have little to offer to someone who knows the testimony of the older Sanskrit texts. For example, Thapar's (1965) history, frequently held up as a standard text, has merely excerpted data from *The Cambridge Ancient History*, and from Rhys Davids' *Buddhist India*, which were written near the turn of the century.[1] Only the recent history of the Subcontinent by Kulke and Rothermund (1986 - drawing heavily, for the Vedic period, on the work of W. Rau) takes up archaeological discoveries as well as recent advances in Vedic philology, and presents a more acceptable view of the period.

The use of Vedic texts by archaeologists forms another painful chapter. The heavy mutual, and uncritical, reliance of scholars of all disciplines (Erdosy, this volume) is here compounded by the fact that several important texts (e.g. JB, VādhB, PS)[2] have not been translated into English while others have been poorly rendered. The belief that the Ṛgveda mentions iron (Banerjee 1965), stemming from the (mis)translation of *ayas* (actually meaning "copper" or perhaps "bronze" - Pleiner 1971; Rau 1974) is perhaps the most glaring example of archaeologists' fatal dependence on work done in a (to them) largely alien field. Another is excessive reliance on a few translated texts such as the Śatapatha Brāhmaṇa (Eggeling 1882-), and - to a lesser extent - the Ṛgveda Brāhmaṇas (Aitareya and Kauṣītaki - Keith 1920), the Atharvaveda (Whitney 1905) and the Yajurveda Saṃhitā (Taittirīya version - Keith 1914), which neglects an entire range of important evidence. Even here, unfamiliarity with Vedic - especially ritualistic - thought leads to the misinterpretation of even those few passages that are actually quoted.[3]

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[1] Rhys Davids is, in fact, the inventor of the concept of "Indian republics", which would be better characterised as oligarchies, operating in loosely organised tribes. Cf Sharma 1968.

[2] The following abbreviations have been employed in the text: for a list of editions and translations of the various texts consult Witzel 1989a. AA: Aitareya Āraṇyaka; AB: Aitareya Brāhmaṇa; AitU: Aitareya Upaniṣad; ĀpŚS: Āpastamba Śrautasūtra; ĀŚS: Āśvalāyana Śrautasūtra; AV: Atharvaveda Saṃhitā; BaudhB: Brāhmaṇa portion of BŚS; BŚS: Baudhāyana Śrautasūtra; BAUK: Bṛhadāraṇyaka Upaniṣad (Kāṇva version); BAUM: Bṛhadāraṇyaka Upaniṣad (Mādhyandina vers.); BhārŚS: Bhāradvāja Śrautasūtra; ChU: Chāndogya Upaniṣad; GB: Gopatha Brāhmaṇa; HirŚS: Hiraṇyakeśi Śrautasūtra; JB: Jaiminīya Brāhmaṇa; JŚS: Jaiminīya Śrautasūtra; JUB: Jaiminīya Upaniṣad Brāhmaṇa; KA: Kauṣītaki Āraṇyaka; KB: Kauṣītaki Brāhmaṇa; KpS: Kapiṣṭhala-Kaṭha Saṃhitā; KS: Kaṭha Saṃhitā; KU: Kaṭha Upaniṣad; KŚS: Kātyāyana Śrautasūtra; LŚS: Lātyāyana Śrautasūtra; MS: Maitrāyaṇi Saṃhitā; PB: Pañcaviṃśa Brāhmaṇa; PS: Paippalāda Saṃhitā; RV: Ṛgveda Saṃhitā; ŚBK: Śatapatha Brāhmaṇa (Kāṇva version); ŚBM: Śatapatha Brāhmaṇa (Mādhyandina version); ŚS: Śaunaka Saṃhitā (vulgate of Atharvaveda); ŚŚS: Śāṅkhyāyana Śrautasūtra; TA: Taittirīya Āraṇyaka; TB: Taittirīya Brāhmaṇa; TS: Taittirīya Saṃhitā; VādhB: Vādhūla Brāhmaṇa; VādhŚS: Vādhūla Śrautasūtra; VaikhŚS: Vaikhānasa Śrautasūtra; VSK: Vājasaneyi Saṃhitā (Kāṇva version); VSM: Vājasaneyi Saṃhitā (Mādhyandina version); YV: Yajurveda Saṃhitā.

[3] A typical example concerns the story of Videgha Māthava (ŚB 1.4.1.14ff-), which is frequently held up as proof of an "Aryan conquest" of the eastern Gaṅgā Basin, whereas it deals with the spread of Kuru orthodoxy (i.e the *śrauta* ritual, etc.)

The main reason for the present dismal situation is, of course, that apart from archaeology our principal source for the early period must be the Ṛgveda, which is a notoriously difficult text. It has been translated only thrice this century: by Geldner (1951) into German in the 1920s, later (partially) by Renou (1968) into French and by Elizarenkova (1989) into Russian. The fact that there has not been a new English translation since Griffith's inadequate effort of the late-19th century (Griffith 1973) has particularly hindered research in South Asian and other English-speaking academic communities.

This is compounded by the generally held view that everything that can be gathered from a study of the text has already been said. The general attitude seems to be: the immigration of the Indo-Aryans is a fact that can frequently be noticed in the Ṛgveda; there are some rare glimpses of political history, with approximately 30 small tribes known from the text; a few names of kings can be discerned, such as Trasadasyu, Divodāsa or the famous Sudās of the 10 kings battle (RV 7.18), a sort of precursor to the Mahābhārata. But all of this is too sketchy to allow us much more than a glimpse at what actually happened in that period. One of the aims of this paper is to show that this impression is erroneous, and to give an idea of the wide range of information that can be extracted.

In light of this situation, the two papers contributed to the present volume aim to fill a significant gap in our knowledge of Vedic history. The first, dealing with linguistic and textual parametres offers an overview of the existing Vedic corpus: what is available, how it has been used hitherto, what was the original purpose of the Vedic hymns, how were they composed and handed down; what is their internal stratification, geographical location and relative and absolute chronology? This will be followed by an overview of the linguistic evidence contained in Vedic hymns; evidence, in particular, for the presence of various languages in the Vedic period and for the interaction of their speakers through the study of loanwords and structural borrowing. Combined with a study of place names and hydronomy, such an analysis will shed light on the social and political changes accompanying the movement of Indo-Aryan speakers into South Asia and their rise to dominance once there. In conclusion, models of linguistic change (especially linguistic switch) will be evaluated, and general methodological notes on Vedic philology advanced. Such a detailed treatment of the methods of philology will be followed, in a separate paper, by detailed analysis of the historical content of the Ṛgveda, the earliest and - for the purposes of this volume - most important stratum of Vedic literature.

A survey of sources

I have already alluded to the comparative dearth of information on early South Asian history. In fact, our only sources are the following: 1) archaeological data,

including, of course, the still undeciphered Indus inscriptions (Fairservis 1992; Joshi and Parpola 1987; Shah and Parpola 1991), as well as prehistoric skeletal remains (Hemphill, Lukacs and Kennedy 1991; etc.); 2) linguistic evidence inside and outside of the Vedas; and 3) the earliest texts, i.e. the four Vedas.

In both contributions to this volume,[4] I shall only briefly discuss archaeology, focussing on linguistic and textual evidence from the Vedas. However, a few points may be noted: 1) archaeological evidence is as open to debate as particular passages in any text; 2) it has been, and to some extent still is, fashionable to connect every new ceramic style with the invasion of a new tribe or people. Fortunately, archaeologists are more cautious nowadays, and think rather in terms of changes in fashions or the diffusion of new techniques, etc.; 3) nevertheless, *radical changes*, such as the introduction of the horse and the chariot, *and* of the whole gamut of Indo-Iranian culture, may well be attributed to the actual immigration of foreign elements. I realise that there has been, recently, a strong reaction against the invocation of external agents of change, such as migration and diffusion. However, that such forces were operating in the past is clear from innumerable historical examples; rather than deny their existence, a sophisticated archaeology will specify exactly the processes involved, instead of relying on such vague concepts as "tribal invasions".

The Vedas and their interpretation

As I asserted at the beginning, Vedic literature has by no means been exhausted for a description of the early history of the Subcontinent. Indeed, apart from Rau (1956, 1983) noone has made a systematic correlation of archaeological and literary data, while there has been constant misuse of Vedic sources and some historical and pseudo-historical materials, not only by nationalist politicians, but also by archaeologists and historians. Most serious is the acceptance of much later materials as authoritative sources for the Vedic period, and although we have already alluded to this in the Introduction, it must be discussed at greater length before turning to the Vedic texts themselves.

Perhaps the most glaring examples of misuse have been made of the Mahābhārata, which is still taken by many as a factual account of events between 3000-1000 B.C. (depending on what dating scheme is accepted for the great battle; see Mirashi 1975-76). Although this text may ultimately reflect the battle of a large confederation of chieftains against the Kurus, or even against the Bharatas, at ca. 1200 B.C., the nucleus of the existing poetical text describing these events is of Late Vedic origin at best (i.e. from the last few centuries B.C.). This nucleus became subsequently heavily inflated, as late as A.D. 500, so that it

[4] The second one being Chapter 14 - [ed.]

now has more than 100,000 verses, instead of the Late Vedic Bhārata text of c. 20,000. These additions - even in standard descriptions of people participating in the battle - mention Greeks (*Yavana*), Sakas (*Śaka*) and even the Huns (*Hūṇa*, *Harahūṇa*) who first made an impact on South Asia in the 5th century A.D..

The Mahābhārata thus reflects, not unlike the Iliad, a Late Bronze or Iron Age text that was finalised much later. Even the nuclear text, whose nature is almost impossible to determine (although see now Smith 1992), was not "fixed" but evolved constantly due to the nature of bardic composition and transmission, which involved the recreation of the text by the individual bards, as has been studied by A. Lord and M. Parry. Data taken from this text have to be sifted and evaluated at every step; to simply compare them with the results of archaeology, in particular to identify certain archaeologically attested cultures with tribes and peoples listed in the Epic (as done by Thapar 1976 or Lal 1981), is to succumb to the last century's penchant for taking Homer literally, and using his list of ships as direct evidence for Greek history in the 12th century B.C.. This kind of procedure involves another commonly committed mistake, that of taking archaeologically attested "cultures" as being identical with tribes, peoples or even linguistic groups. It would be better to adopt to the dictum of one of my teachers, K. Hoffmann that "pots don't speak" - they certainly do not, as far as language is concerned. Archaeologists, however, can make them talk in other ways that we will investigate below.[5]

Worse still, has been the fate of the Purāṇas. They have been used by some (Pargiter 1922; Smith 1973) to establish genealogies of the dynasties of various parts of South Asia, dating back thousands of years. This comes close to the fictions surrounding the immigration into Latium, and settlement there, by Aeneas or, better still, to the efforts of some mediaeval court writers who tried to secure for their princes an ancestry going back to the warriors who fought at Troy.[6] As is well known,[7] the Purāṇas were composed only in the 1st millennium A.D., or even later as in the case of the Kālikāpurāṇa. History has been completely redrawn in these texts. One may also mention that by the

5 Similarly, the story of the flood that destroyed Hastināpura would, on direct comparison with the archaeological evidence, lead to a date for the Mahābhārata around 400 B.C.: as that city was indeed devastated by a flood around then (Lal 1955 - although his dating of the flood level is to ca. 800 B.C., the radiocarbon dates (Possehl 1990) would suggest a much later dating).This fits with neither the traditional date of 3002 B.C., nor a revisionist one around 1400 or 1000 B.C.. It is, in fact, proof of the reliability of some of the data in the Epic, albeit reflecting a period of composition over many centuries, if not an entire millennium!

6 Examples may be seen in inscriptions at Klagenfurth, South Austria. Likewise, in the Muslim world as regards Sayyid descendants of the Prophet, or even descendants of the Prophet's horse.

7 See Rocher 1986. One could add examples of the misuse of the Rāmāyaṇa whose material is even more mythical in character and at best reflects some aspects of South India.

time of Megasthenes' visit around 300 B.C., the "historians" of Pātaliputra could already claim a historical record of 6,000 years (Witzel 1991); interestingly, this neglected piece of evidence fits neither the traditional date of the beginning of the *Kāliyuga*, nor any other revisionist scheme of early dates for South Asian dynasties. A common mistake of all early kinglists is the arrangement of local dynasties in succession to one another, when they were, in fact, contemporary. The procedure is clearly discernible in Kalhaṇa's Rājataraṅginī, or in the mediaeval Nepalese Gopālarājavaṃśāvalī (*Ibid*) and results in hundreds, or even thousands, of years of consecutive dynasties. The necessity of filling in gaps until the beginning of the *Kāliyuga* in 3002 B.C. has clearly furthered this trend.

Those (e.g. Pargiter 1922; Pillai 1959; or Smith 1973) who use Epic and Purāṇic data also overlook the little recognised fact that everything from known history up to the Mahābhārata war is filled in from *Vedic* sources (a tradition that is well visible in Kalhaṇa and the *Vaṃśāvalīs*). One can easily show that groups of 2-3 kings were lifted intact from the Ṛgveda, the Brāhmaṇas, and so on, and inserted wherever they were thought to fit.[8] Further, one can read in the Purāṇas that Manu, clearly the mythical ancestor of mankind, was himself an ancient "king" - governing himself and his few sons.

Finally, neither can the Mbh and the Purāṇas be treated as independent sources, as has been done in *The History and Culture of the Indian People*, whose authors expressly say that the Mbh might have been "composed later", but that the Purāṇas go back to an "original Purāṇa" dating to the Vedic period, and any agreement between them must attest to the accuracy of the tradition they preserve. The possibility, indeed certainty, that compilers simply excerpted materials from Vedic literature is nowhere mentioned, except by Ghurye who, in one short passage, calls the Purāṇas' technique a "patchwork method".[9] Early Buddhist sources of the Pāli Canon are treated in the same way.[10]

The nature of Vedic texts

Before a revision of the information content of the Vedas we must define the sort of texts we are dealing with, their transmission, structure and organisation, interrelations, geographical position and (relative) date.

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[8] Note also the complete separation in the Purāṇas of the Ikṣvāku dynasty from the Pūrus and the insertion of appropriate kings at a date *much before*, but corresponding with the Pūrus, like the Bharata king Sudās. Such is the typical method of the Rājataraṅginī and the Gopālarājavaṃśāvalī.

[9] Cf the work of R. Söhnen (1984) who shows that the Aitareya Brāhmaṇa was the source of the Brahmapurāṇa, its Gautamīmāhātmya.

[10] Perhaps not surprisingly, the fact that Buddhist sources disagree quite often with our Vedic, Epic and Purāṇic materials, even for the period of the Buddha(!), is brushed aside by the historians of the Bharatiya Vidya Bhavan.

The Vedic texts have been composed orally; and, what is more, to this day are also largely transmitted in this fashion. The earliest manuscripts date to the 11th century A.D., and generally all manuscripts remain inferior to the orally transmitted version, which has been extremely faithful, contrary to the norm (as exhibited by the transmission of the Epics, for example). Right from the beginning, in Ṛgvedic times,[11] elaborate steps were taken to insure the exact reproduction of the words of the ancient poets. As a result, the Ṛgveda still has the exact same wording in such distant regions as Kashmir, Kerala and Orissa, and even the long-extinct musical accents have been preserved.[12] Vedic transmission is thus superior to that of the Hebrew or Greek Bible, or the Greek, Latin and Chinese classics. We can actually regard present-day Ṛgveda-recitation as a *tape recording* of what was first composed and recited some 3000 years ago.[13]

In addition, unlike the constantly reformulated Epics and Purāṇas, the Vedic texts contain *contemporary* materials. They can serve as snapshots of the political and cultural situation of the particular period and area in which they were composed. Though largely composed by (and all too often *for*) Brahmins, they nevertheless contain much that allows us a glimpse of the political and social situation, of customs and beliefs, and of the public and private lives of their authors and of other social groups.[14]

As they are contemporary, and faithfully preserved, these texts are equivalent to inscriptions. Naturally, they carry all the biases and, political aims (as in the case of the Battle of the 10 Kings) of their authors and their *milieu*; nevertheless, they are immediate and unchanged evidence, a sort of oral history - and sometimes autobiography - of the period, frequently fixed and "taped" immediately after the event by poetic formulation. These aspects of the Vedas have never been sufficiently stressed, yet it is because of them that we can make much more use of these early texts than hitherto has been the case.

On the other hand, the texts at our disposal are not history books. We do not have chronicles or dynastic lists, only incidental references to tribes, clans,

[11] As evidenced in the *akkhalī kṛ* case (Thieme 1964: 62-63). See Goody 1968, 1987; also Staal 1983.

[12] Pitch accent disappeared from Sanskrit and was replaced by stress accent in the last few centuries B.C., as Patañjali shows: *ādy-udātta*. See Witzel 1989a.

[13] We have to distinguish, it is true, between the composition of a Vedic text, for example of the RV which was composed until c. 1200 B.C., and its redaction sometime in the Brāhmaṇa period (ca. 700 B.C.?). But the redaction only selected from already existing collections and was mainly responsible only for the present *phonetical* shape of the texts. The RV of late Brāhmaṇa times only differed from the one recited in Ṛgvedic times in minor details such as the pronunciation of *svar* instead of *suvar*, etc. The text remained the same.

[14] Books which detail such information are few and far between: for the Ṛgvedic period see Zimmer 1879; for the YV Saṃhitās and Brāhmaṇas: Rau 1956, 1983; for the Sūtras: Ram Gopal 1959. We need a new discussion of the Ṛgvedic and, especially, of the Mantra time period, which has never yet been attempted.

families, poets, priests, noblemen, chieftains ("kings" *rājan*) and their actions. It is our task to piece together the evidence from these disjointed remarks. To compensate for this, the Vedas do not suffer from the particular type of bardic, oral transmission characterising the Mahābhārata and the still later Rāmāyaṇa, which in addition were composed and redacted much later in history than was the case in Greece.

Of all texts the Ṛgveda is the oldest, and the principal source used in this investigation. It contains hymns of praise and supplication addressed to the gods (and, occasionally, as *dānastuti* or "praise of the gift", to a contemporary chieftain), or poetry of the ballad type. These hymns are difficult to understand not only because of their archaic language and complicated poetics, but also because of their very form: there is no "logical" development describing successive actions or the story of a myth, only disjointed allusions to facts well known to contemporary listeners. In fact, the hymns were perhaps nothing but texts composed for and recited at the New Year ritual and the accompanying festival in the early, pre-1200 B.C. period. They were composed in the elaborate and complicated poetical style of the Indo-European and Indo-Iranian tradition that could only be appreciated properly by the more educated sections of a contemporary audience.

Thus, the myths, the ritual and certainly the contemporary history have be pieced together from stray references, and these, too, were addressed to people who knew the events well. The hymns are not only very obscure to us, but are often intentionally vague and full of allusions and political puns in treating recent events (Schmidt 1980).

The later Vedic texts contain stanzas and prose *mantra* recited, sung or mumbled during the rituals of a later period or are concerned with the execution of the rituals. They are constituted of several layers, much larger in size than the Ṛgveda. But they are of a different kind, concentrating on the explanation of ritual on an expert level; composed by priests for priests, they justify why certain actions in ritual are done this way or that. Cultural and historical information appears occasionally, in secondary clauses and similes. But the corpus is so large that a complete picture of the period can indeed be composed, an accomplishment that has largely been brought about by Rau (1956) and Mylius (1971-1974), whose works - written likewise in German - have also gone largely unrecognised. Once again, we do not get a history of the period but have to reconstruct it by collecting the stray references in the texts; there are, however, a few (pseudo-)historical stories which seem to treat important political events, most notably the story of Videgha Māthava (ŚB 1.4.1.14 ff.) which is usually misinterpreted as an "Indo-Aryan march towards the East", whereas it chronicles the spread of Kuru orthodoxy.

The bulk of the post-Ṛgvedic texts, thus, is constituted by "theological explanations", by the expository prose of the Yajurveda Saṃhitās and all the

Brāhmaṇas and by the descriptive prose of the Sūtras which actually describe the course of the rituals.

In other words, the Vedic texts are almost exclusively ritual; they are like the Psalms of David accompanied by a priestly explanation of the great Easter sacrifice at the temple of Jerusalem, and by a ritual manual for its priests. What would such a collection of texts tell us about the actual history of the Hebrews? Very little indeed, unless we used philological methods to extract historical and cultural information from incidental similes, asides and the few direct references to persons and their actions.

For the following period, that is the time of the Buddha, the emergence of the first larger kingdoms and the first South Asian empire, we have a large body of literature in the Pāli texts of early Buddhism. However, their internal stratification and dates are not really established and they represent, of course, only the Buddhist point of view, with cultural and historical evidence only from Bihar and surrounding areas of Eastern India. These texts are largely the sermons of the Buddha, delivered in an eastern colloquial dialect, "translated" into a western dialect (and later into Sanskrit), transmitted by an, initially, oral tradition, collected and redacted one to two hundred years later and brought to Sri Lanka and there written down only in the 1st century B.C..[15] For this period, however, there are also a few reports of Greek authors, of those accompanying Alexander and of travellers like Megasthenes (c. 300 B.C.), as well as the first (decipherable) evidence written in a South Asian language, namely the inscriptions of Aśoka in the mid-3rd century B.C..

To put all this scanty data into context we must now turn to the evidence available for dating and locating the texts of the period.

The stratigraphy of the texts: Localisation

Since I have dealt with this topic extensively in an earlier paper (Witzel 1987), I shall merely summarise the results of that investigation here, as concerns the localisation of the principal texts.

Ṛgveda:	Panjab and surroundings. Maximum extension from the Kabul River to the Gaṅgā
PS:	Western northern India, up to Kāśī (Benares)
ŚS:	Central northern India, up to Aṅga
YV-*mantras*:	Centred on Kurukṣetra: "the rivers flow west and eastwards"

[15] In 89-77 B.C. by king Vaṭṭagāmaṇī Abhaya, at the council of Ālokavihāra (=Aluvehera) (Hinüber 1986: 36)

Caraka:	An old, lost school, located probably between KS, MS, Vādh, and Vāj. territories
KS:	Eastern Panjab/Kurukṣetra: "the rivers flow westward". Early eastward expansion (see KS 26.2: 123.17). Arrian (*Anabasis* 5.21-22) places the *Kathaíoi* in the doāb of the Ravi and the Beas/Satlej.
KpS:	Ditto. (Megasthenes/Arrian, *Indikē*, 4.8 at the confluence of the Ravi (and Chenab?))
MS:	Kurukṣetra, with southward expansion. See MS 4.7.9:104.14
TS:	Pañcāla country (Uttar Pradesh)
VSK:	Kosala (E.U.P.), probably excluding the Vatsa country between the Gaṅgā and the Sarayu
VSM:	Videha (N. Bihar), later also South of the Gaṅgā, on the Andomatis (Tons? South of Allahabad) - see Arrian, *Indikē* 4.4.
ABo = AB 1-5:	Older part: East Panjab: "the rivers flow westwards".
ABn = AB 6-8:	Later part: Videha. Knowledge of the whole of North India, even Aṅga, Kaliṅga, Andhra.
AA:	Ditto
PB:	Kuru country, near Kurukṣetra; later in the East? (recited with *bhāṣika* acc. until the time before Śabara).
KB:	Pañcāla country (U.P.), co-operation with Baudhāyana (BŚS 2.5.)
KA:	Already knows of a Magadhavāsin Brāhmaṇa.
TB/TA:	Pañcāla country.
VādhB.:	Pañcāla country, on the Gaṅgā
BaudhB	Brāhmaṇa portions of BŚS in the Vatsa country between the Gaṅgā and the Sarayu
JB & JUB	"Where the rivers flow northwards": the area between the Gaṅgā, Vindhya hills, Rajasthan desert and the sea: Matsya, the Baghelkhand and Malva. Eastern border unclear.
ŚBK	Kosala: W. boundary with the Kuru-Pañcālas is the Sadānīrā.
ŚBM 6-10	=ŚBK 7-12: Imported from the West (Śāṇḍilya country, U.P.?)[16]
ŚBM 11-13	= ŚBK: "7 rivers flow westwards, 2 rivers eastwards" (ŚBM 13.8.4.2)
ŚBM	Videha: Western boundary with Kosalas is the Sadānīrā. see VSM!
GB:	Late compilation, Anubrāhmaṇa of the lost Paippalāda Brāhmaṇa = area of PS?

[16] See Jaina texts on the Saṇḍilla country which J.C. Jain (1947) locates North of Kāśī.

Upaniṣads:	Same area as their schools; AitU, KU, JUB, ChU more to the east than PB: "rivers flow eastwards and westwards".
BAUK	= ŚBK
BAUM	= ŚBM
ĀŚS:	Videha
ŚŚS:	Pañcāla
LŚS:	Probably in Lāṭī, South Gujarat.
JŚS:	= JB area
BŚS:	= BaudhB: in the Vatsa country between the Gaṅgā and the Sarayu
VādhŚS:	= VādhB: Pañcāla country on the Gaṅgā.
BhārŚS:	Pañcāla country on the Yamunā
ĀpŚS:	Pañcāla country, opposite of the Matsya
HirŚS:	Pañcāla country on the Gaṅgā.
VaikhŚS:	A late text, possibly South Indian

Relative chronology

The four Vedas have been divided into four levels by Indian tradition: the Saṃhitās, Brāhmaṇas, Āraṇyakas and Upaniṣads. This is basically sound and reflects the gradual growth of the corpus. Internal evidence points to it as well. A Brāhmaṇa text usually quotes the earlier Saṃhitās, or the Upaniṣads and the Sūtras quote all preceding texts. However, we have to finetune this scheme by observing the actual historical levels in the development of the texts, and not only their traditional order given by Indian commentators. Various texts were, and still are, "misclassified" that way, even by contemporary Vedic scholars.[17]

I mention the following cases: most Upaniṣads are technically in fact part of the Āraṇyakas of the schools that they are attributed to (Witzel 1977). TĀ is a composite text with the very young TĀ 1.[18] Such a text can be classified neither as Brāhmaṇa nor as Āraṇyaka, nor as Upaniṣad. Or, the VādhB (Anvākhyāna) is still regarded as part of the VādhŚS[19] while it is an additional Brāhmaṇa to TB.[20] MS 4.9 should be regarded as an Āraṇyaka, with parallels in TA 4-5, ŚB 14.1-3 and KathĀ. VS 26-40 has various, partly Upaniṣad-like additions,

[17] Cf Gonda 1977: 471, 496; Minard 1956: 717 ff..

[18] Taken from the lost KaṭhB, another KaṭhB piece (TA 2), some older Mantra and Brāhmaṇa chapters (TA 3-6, among which 4-5 form the actual Taitt.Ar. treating the *pravargya* ritual), and finally the older Upaniṣads (TA 7-9 = TU 1-3) and the younger MahUp. (TA 10).

[19] In spite of Witzel 1975: 75 ff..

[20] To this category belong some parts of KathB (in fragments), the Brāhmaṇa portions of BŚS (18), ŚŚS (a parallel of AB 7), and GB (Anubrāhmaṇa of the lost Paippalāda Brāhmaṇa).

notably the Īśa Up. in VS 40. Here we even find a YV Saṃhitā and its Upaniṣad in one "book".[21] Therefore, when speaking about such categories as Samhitās or Upaniṣads one has to be rather precise and should test whether certain sections of a particular text really fit the description of this category.

The internal chronology of the texts certainly helps to establish these historical levels, but an even more secure guide is the development of the Vedic language itself, which, like all languages, changed constantly and often imperceptibly. Its study allows the establishment of five levels (Narten 1968: 115, ann.13; Hoffmann 1975; Witzel 1989a). To pay close attention to these is of extreme importance for a study of the texts, just as correct and detailed stratigraphy is for archaeology. However, such attention to detail has been rare among even Vedic scholars. Even in recent histories of Vedic literature, for example, the distinct levels of YV Saṃhitā prose explaining the ritual, as well as the *mantras* used in the ritual as found in MS, KS, TS, and that of Brāhmaṇa prose such as found in AB, TB etc. are habitually confounded as one body of literature. Results based on this type of investigation are at best too general and at worst completely obscure important developments.[22] The five levels may be briefly summarised thus (cf also Witzel 1987, 1989 for details):

Ṛgveda: The earliest attested stage of Vedic and the most archaic; words that occur in the Ṛgveda often have cognates or direct correspondances in Old Iranian, especially Avestan, texts while they no longer appear in post-Ṛgvedic texts. A chronology of the Ṛgvedic books has been attempted by Wüst (1928) and others[23] which agrees more or less with other linguistic data. Not insignificantly, some colloquial forms of speech, such as that used by the wives of the gods, shows various social levels even in the Ṛgveda (Hoffmann 1975: 7).

Mantra language: Includes the *mantras* in verse and prose of the Atharvaveda (PS, ŚS), the Ṛgveda-Khila (RVKh), the Sāmaveda Saṃhitā (mostly taken from the Ṛgveda) and the Yajurveda Saṃhitās. All these texts form a new type of Vedic, largely unstudied and unrecognised as a distinct entity. They contain the oldest Indian prose.

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[21] Note that according to Caland (1932: 132; cf Witzel 1989a: n. 91) parts of VS are abstracted from ŚB.

[22] For example, even Gonda (1975) confounds levels 2-4 when speaking of YS and YB in one breath. Likewise, Bodewitz (1976) treats the religion of these texts as belonging to a single body of evidence. Others, e.g. O'Flaherty (1985) simply attribute idiosyncratic dates to the texts, such as 900 B.C. to the JB.

[23] See, in general, Wackernagel 1896; Renou 1957; Hoffmann 1967; Wüst 1928. The last two, in particular agree more or less in their solutions, even though these were based on different data:

Wüst (see below, 5.4):	9, 4 | 3, 5, 7 | 2, 6 | 8, 10
Hoffmann (p. 36)	4-6-2-1-7-5-10-3-9-8

Arnold (1905, 16) has a somewhat different estimate of the age of the books; this is based, however, on a development (partly supposed) of the Vedic metre only.

Saṃhitā-prose: Distinct from the previous level due to several developments. The texts (MS, KS, KpS, TS) contain the first examples of expository prose, explaining the ritual:[24] to wit, Brāhmaṇa-style explanations and discussions (*not to be confused with the Brāhmaṇas proper, at level 4*).

Brāhmaṇa prose: It is only this level that comprises the Brāhmaṇas proper, of all the four Vedas. Even this group should be divided into two levels, of earlier and later Brāhmaṇas. It also includes the older Upaniṣads (BAU, ChU, JUB), the late additional Brāhmaṇas (Vādhūla-Anvākhyānas, GB) and some of the oldest Śrautasūtras, like BŚS, VādhŚS, and the older portions of ŚŚS and JŚS. Some of the later portions of the older Upaniṣads (e.g. ChU 6) show the considerable influence of a more popular form of spoken Sanskrit.[25] The exact classification of all these texts remains a problem, one which has, once again, gone largely unnoticed.

Sūtra language: This level of Vedic comprises the bulk of the Śrauta and Gṛhya Sūtras. They are not reckoned among the Vedic texts proper by Indian tradition and in some of them it is the content, rather than the language, that is Vedic. The later Upaniṣads (KaṭhU, Maitr.U, etc.) also belong here.[26]

After this last level of Vedic, there is Epic speech, Pāṇini's local (northwestern) *bhāṣa*, as well as early Classical Sanskrit. A link between these forms of post-Vedic Sanskrit could be sought in the language of the so-called *yajñāgāthās* found in such texts as AB and ŚB (Horsch 1966; Renou 1954: 528ff., 1956: 38). Their content is frequently historical, relating deeds of kings who had offered the Aśvamedha sacrifice and so on. In this regard they look like the predecessors of the Epics, especially when they speak of the Pārikṣita dyn-asty.

In conclusion, following Mylius (1970), I divide the various texts into 3 broad layers: *Old Vedic*, (Ṛgveda), *Middle Vedic*, (Mantra texts, Yajurveda Saṃhitās, Brāhmaṇas, old Upaniṣads), and *Late Vedic* (Sūtras).

Absolute Dates

Although the internal stratification of the Vedic corpus is clear, absolute dates are difficult to establish (cf. Mylius 1970; Rau 1983). There is only external evidence, such as the Mitanni treaty of 1380 B.C., mentioning major Ṛgvedic

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[24] See Hoffmann 1975: 509 ff. and cf. the contents of the lost Caraka-Samhitā (Witzel 1982), which predated MS, KS.

[25] Tedesco 1943, 12 ff.: *smāryase* > (*ni.*) *bhālayase*.

[26] For the MuṇḍUp see Salomon 1981: 91ff., 1989. Cf also Epic forms like *vṛṇute* < *vṛṇoti* in later Upaniṣads (KU, MaṇḍU, ŚvetU - Narten 1968: 127) See also Vedic vs. post-Vedic features in four newly published Upaniṣads (Tsuji 1957). Late Upaniṣads of a sectarian origin have to be excluded since they are definitely post-Vedic.

deities (Indra, Mitra-Varuṇa and the Nāsatyas); the archaeologically attested appearance of iron which forms a date *post quem* for the *mantra* portions of the Atharvaveda around 1150 B.C. (Witzel 1980: 122-124); and, the frequently discussed dates of the Buddha (in the 5th/4th, not the 6th/5th, centuries B.C.: Bechert 1982; v. Hinüber 1986: 6; Erdosy 1993), who should be later than the older Upaniṣads which presuppose, in turn, most of the Vedic texts. The grammarian Patañjali (securely dated to 150 B.C.) knows the bulk of Vedic literature, as did his predecessors Kātyāyana and Pāṇini (c. 5th century B.C.). The Pāli Canon likewise presupposes the existence of the Vedic corpus.

To these meagre data we may now add as a date *post quem*, the end of the urban phase (or Integration Era)[27] of the Indus Civilisation around 1900 B.C., an event that must precede the Vedic texts which do not know of cities or towns but speak, instead, of ruined places where one might collect potsherds for ritual purposes (Burrow 1963). At the same time, since the Sarasvatī, which dries up progressively after the mid-2nd millennium B.C. (Erdosy 1989), is still described as a mighty stream in the Ṛgveda, the earliest hymns in the latter must have been composed by c. 1500 B.C..

The Linguistic Map of Modern South Asia

In reviewing the linguistic data concerning South Asia we can start from the contemporary situation and trace it backwards. There are at least 5 linguistic families present today, with indications pointing to the remnants of others. These are, in decreasing order of importance, based on numbers of speakers:

1) **Indo-European**, which has been present in South Asia since at least the 2nd millennium B.C., with languages belonging to its Indo-Iranian branch: Iranian (*Pashto*, *Baluchi*) in the West and Northwest, Kāfirī/Nūristānī in the extreme Northwest and the various IA languages: from archaic (Vedic) Sanskrit. to *Lahnda* and *Panjabi* in the Northwest, *Bengali* and *Assamese* in the East, *Kashmiri* and *Nepali* in the North, *Konkani* and *Sinhalese* in the South, and so on;

(2) **Dravidian**, which has been directly attested to in inscriptions since the beginnings of our Era, concentrated in the South, but with various remnants in the Central Indian mountains (*Gondī*) and in Baluchistan (*Brahui*);

(3) **Austro-Asiatic**, which has only been recorded in the past few centuries with *Muṇḍa* in Central and Eastern India,[28] as well as with *Khasi* in the Assam hills;

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[27] The term is discussed in detail by Shaffer (Shaffer 1991; see also Shaffer and Lichtenstein in Chapter 5 of the present volume).

[28] The existence of both Austro-Asiatic and Dravidian languages is, of course, indirectly attested to from the earliest stratum of Indo-Aryan literature onwards.

(4) **Tibeto-Burmese** which has been recorded in various forms, notably *Tibetan* and *Newari*, all along the Himalayan belt, since the 4th century A.D., as preserved in names in the Licchavi inscriptions of the Kathmandu Valley;

(5) **Burušaski** , which has been recorded only in the last century in Hunza, and is thus far unrelated to any known language in the world. There are indications that several other languages are in the same isolated position. *Kusunda* in the hills of Nepal is one such example, and the lowest substrate level of *Nahalī* in northern Maharashtra is likewise unrelated to other language families.

The Linguistic stiuation in Middle/Late Vedic times. Linguistic Palaeontology

Although the Middle/Late Vedic periods are the earliest for which we can reconstruct a linguistic map (based on Witzel 1989a), the situation even at the time of the Indus Civilisation and certainly during the time of the earliest texts of the Ṛgveda, cannot have been very different. There are clear indications (Kuiper 1948, 1955, 1962, 1991) that the speakers of Ṛgvedic Sanskrit knew, and interacted with, Dravidian and Muṇḍa speakers. In later Vedic texts we even have some indications of Tibeto-Burmese influence, as in the name of the *janapada* of *Kosala*, and of the river *Kosi* (Witzel 1993, n.d.). The actual linguistic picture for the Middle/Late Vedic period may be summarised thus (cf. Witzel 1989):

Antiquated high/ literary Sanskrit	Ṛgveda Mantra language: AV, SV, ṚVKh, YV *mantras*
contemporary high/ literary Sanskrit	Middle/Late Vedic dialects (YV Saṃhitā prose / Brāhmaṇas / Upaniṣads / Early Sūtras)
Educated Sanskrit	Pāṇini's *bhāṣā* — Colloquial Vedic of ChU & other dialogues (later Patañjali, Mahābhāṣya)

NW:	Panjab:	Kurukṣetra:	Pañcāla	Eastern dialect:
Varnu dialects	Peculiarities	Subdialects of the Kurus	dialect	"Asurya speech"

	Bardic Sanskrit of (*yajña-*) Gāthās
	Bardic Sanskrit of (pre-) epic[29]
popular speech	Prākṛt dialects

non-IA	W: Iranian:	N: Kirāta lg's	SW: Kīkaṭa, Niṣāda	SE: Muṇḍa
languages	Kamboja, YAv.	(early Tib.-Burm.?)	(cf. Nahalī substrates)	(Puṇḍra, Kaliṅga...)

[29] The exact source(s) of "Classical Sanskrit" remain(s) an open question. It can be suspected that it is based on the Bardic language, with influences from the Colloquial/Educated Skt of Late Vedic, as it first emerges in texts such as the grammatical commentary of Patañjali, c. 150 B.C..

Now, it is well known that languages contain "hidden histories" of their speakers, which may be recovered by a method known as *linguistic palaeontology*. For example, the presence of Indo-European (Germanic) words for *snow, wolf, wheat, barley, mead,* and *beer* in English, and the absence of the same for *lion, tiger, elephant, tea, coffee, cocoa, rice* and tropical rain forest (*jungle*), suggest that the ancestral form of this language arose in a temperate climate (as it did, in NW Germany and western Denmark).

In South Asia an interesting example is furnished by the case of Nahalī, a small language spoken on the Tapti River, NW of Ellichpur in Madhya Pradesh. In it we find, at successively "lower" levels, traces of Dravidian and Muṇḍa words below its present form, a dialect of Indo-Aryan. According to Kuiper (1962: 50, 1966) Nahali vocabulary has 36% of Kurku (Muṇḍa) and 9% of Dravidian words,[30] while the oldest substrate level is represented by some 24% of the words which do not have any cognates in India; they must be regarded as belonging to the oldest language traceable in South Asia.[31] Such a strong substrate is also known, for example, in Germanic languages, including such common words as *sheep*. A similar situation also occurs in Kusunda (Hodgson 1857; Toba 1971; Reinhard 1969, 1974), and perhaps with the substrates of the Tharu living in the Indian and Nepalese Tarai,[32] and of the Veḍḍa language in Sri Lanka. However, the language of the small tribe of the Rauṭe or Ban Rajas of Nepal, still a hunter and gatherer group, seems to be Tibeto-Burmese.[33]

[30] Kuiper (1966) pointed out that there is an older Austroasiatic level (Dhimal) in Nahalī; that Kurukh (i.e. Dravidian) words were borrowed at a later date; that this is preceded by a Kurku (Korku - i.e. Austroasiatic) level; that there is some Kolami/Naiki influence; and that there are uncertain connections with Tibeto-Burmese. K.H. Pinnow (1966) derives the Nahalī verbal system directly from Proto-Munda.

[31] It is unclear to which linguistic family this substrate might have belonged. Rather tentatively, Kuiper pointed out some superficial similarities with the equally isolated Ainu language of N. Japan, e.g. Ku. *sita* "dog", Ainu *sita* "dog"; Nah. *āpo* "fire", Ainu *apoi* "fire". Other possibilities include a comparison with Papuan or Australian.

[32] For additional studies see the following: Bhattacharya 1957; Burrow 1958; v. Führer Haimendorf 1943, 1945, 1956; Koppers 1948; Mazumdar 1932; Shafer 1954, 1971.

One had supposed a Munda substratum in some Tibeto-Burmese languages of the Himalayas; see Konow 1905, refuted by Benedict 1972: 7, n. 23. Note, nevertheless, that Kusunda represents a stratum earlier than the Tib.-Burm. languages of the area and, also, that there seems to be a non-Tib.-Burm. substratum in Tharu. Finally, one would like to know a little more about the nomadic Rauṭe, who speak a Tib.-Burm. language (See Bista 1976; Reinhard 1974; Toba 1971).

[33] See Bista 1976; Reinhard 1974. The Rauṭe may represent a regressive group such as the allegedly neolithic Austric Tasasay discovered in 1971 in S. Mindanao in the Philippines. The latter live at stone-age level, using crude stone scrapers of late palaeolithic type and do not even go hunting. However, their language is Malayo-Polynesian and it even contains some derivatives of Skt words (*divata* "deity"), which shows early cultural contact with the rest of Indonesia in the 1st millennium B.C.. If indeed not a hoax, this is a case of regress rather than the survival of an old stone age culture.

Theoretically, all these languages - proto-Nahali, proto-Burušaski, proto-Kusunda and proto-Tharu - could be candidates for the language of the Indus inscriptions, even if proto-Dravidian remains a more likely solution.

This sort of evidence suggests, just as in other parts of the world, successive levels of immigration by speakers of large language families and, at the same time, the successive adoption of their languages by a population that basically stayed in the same area. More on this later.[34]

Turning to Sanskrit, it is interesting, in light of the preceding brief discussion of English vocabulary, that "tropical" words are likewise absent in it, which indicates that it was an immigrant into South Asia. Words for *lion, tiger, elephant* are either loanwords from local languages, or are new formations, such as *hastin* "elephant; the one with a hand". Further, some Indo-European signifiers have been transferred to species closely related to those native to the ancestral home of the migrants: e.g. *mṛga* (Av. *mərᵊga-*), which originally meant "wild animal",[35] came to denote the antilope, especially the black gazelle. In most cases, however, a local name was taken over, as long ago pointed out by Henning (1965, 29 ff., 42 ff.) and Mayrhofer (1956) for the case of the proto-Asian words for lion (*siṃha*) mustard (*sarṣapa*) and tiger (*puṇḍarīka, pṛdāku*).[36] What is surprising, however, is the large number (some 300) of clearly non-Indo-European words even in the Ṛgveda (as shown by Kuiper), a highly hieratic text in traditional poetical language.

Cultural loans

Through a study of cultural loan words in early Vedic Sanskrit texts, we can draw further conclusions on trends in early (pre-) Vedic civilisation. The examples provided by the words for rice, wheat, sugar cane, sesame, as well as dog, cow, horse, chariot, brick, copper and iron are particularly instructive.

Rice is a newcomer to the home of the Ṛgveda, that is, to the NW of the Subcontinent. We know that the origin of domesticated rice is in Southeast Asia or southern China. Although recent work in the Vindhyan hills (Sharma et al. 1980) suggested South Asian domestication of rice by the 5th millennium B.C., the radiocarbon dates produced by the excavated sites do not, by and large, support this contention (Possehl 1990). In any case, even if the hypothesis were true, the earliest archaeologically attested presence of rice in the Northwest re-

[34] Cf., in general, Zimmer 1990a, b; and Kortland 1990.

[35] Including "wild bird", a meaning still found in the RV (e.g. 1.182.7); the old meaning is common in Avestan (Y 10.10, Yt. 13.70, V. 5.1 etc.)

[36] While the Indo-Iranian and Palaeo-Asian word ***parθ* has been forgotten. Cf Kuiper (1955: 7, 140; 1991).

mains datable to the early 2nd millennium B.C. (at Pirak - Shaffer 1991), coinciding with the dissolution of the Harappan Civilisation (Shaffer's Localisation Era - Shaffer 1991; see also Chapters 5 and 10 of this volume).

In light of this information the absence of rice in the oldest strata of Ṛgvedic texts is not surprising. Unless the Ṛgvedic words (*brahma-*) *udana* and *puroḷāś* mean a certain rice dish, as they do later on, cultivation and ritual use of rice first appear in the Atharvaveda (as in the word *vrīhi*, etc). Instead, the Ṛgvedic Indo-Aryans relied mainly on pastoralism and the growing of some barley (but, typically, not wheat), which had been a staple of the Indus Civilisation. To this day the traditional boundary between (predominantly) wheat- (and barley-) growing and rice-growing regions is in the central Gaṅgā Valley.

The Southeast Asian origin of rice is also indicated by its names in various languages. To begin with, Sanskrit *vrīhi* is clearly a loanword: it does not fit the Indo-European word structure. However, there is a wide range of related words in various Asian languages which have not been studied. Some of these are given by Mayrhofer (1956) such as Ved. *vrīhi* < pre-Indo-Aryan * *vrijjhi-*, Ir. **brinj*, mod. Pers. *birinc*, Nūristānī *wric*,[37] Tamil *ari* (*ci*), Greek *oruza*, etc.; to this must be added, however, Tib. *'bras*, Malay *b*^{e}*ras*, Jap. *uruchi*.

This indicates, just as in the history of tea (*tea*, *thé*, *chai*), at least two paths of dissemination of the plant and the word, and allows an approximate reconstruction of **vrijjhi*/**bras*, something like ** $^{v}/_{b}\, r\, ^{i}/_{a}\, (n)\, ^{j}/_{c}\, i$ or, perhaps, ** *mrej*^{i}, apparently, an old word of culture transmitted to all these language families from the home of rice cultivation, perhaps somewhere in Southeast Asia or Yunnan.[38] Similarly interesting words in S. Asian agriculture include Newarī *tu* "sugar cane" cf. Filipino (Tagalog) *tu*.

By contrast, Western influence is seen in *godhūma* "wheat", a derivative of Iranian **ganduma* (Av. *gantuma*),[39] which can be traced back to such Near Eastern words as Hittite *kant*, Egypt. *xnd*, Semit. **ḫanṭim* (pl.) (Mayrhofer 1956,I: 348; Berger 1959: 40 ff.). At the same time, Sanskrit *go-dhūma*, which

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[37] Fussmann (1977) reports that *yava* denotes "rice" in the Kafir languages. However, this can only be a substitution.

[38] Note that rice is found earlier and earlier now, in Japan, for example already in the Jōmon period and not just in the Yakoi period (<300 B.C.). Other sources indicate different origins: Chinese *mi*, Tibeto-Burmese **moy* (cf. Jap. *kome*?) and Austroasiatic: Dhimal *ūnkhū*, Munda *r-unku*, Mon-Khmer *aṅkau*, Sue *r-aṅkao*, Sakai: Krau *uṅ-kuok/r-e-kua'*; *cf.* Kuiper 1966: 81 (again cf. Jap. *kome*? Is this a cross of E. Asia *mi*/*moy* and SE Asian * *unku*(*k*)? The SE Asian/Yunnan word ** $^{v}/_{b}\, r\, ^{i}/_{a}\, (n)\, ^{j}/_{c}\, i$ seems to occur in a wide belt between NE Asian *mi*/*moy* and something like SE Asian **unku*(*k*).

[39] Avest. *gantuma*, Baluchi *dandīm* < *gandūma*; Brahui *xolum* < *golum*; Khot. Saka *ganaṃ* <* *gangama*; could Avestan *gantuma*, Drav. (Kan.) *gōdi*, be connected with the name of the country of *Gandhāra*, which probably is due to a popular etymology as well (cf. Skt *gandha*, *Gandharva*)?

is based on a popular etymology ("cowsmoke") clearly has been influenced by Dravidian forms as well, e.g. Kannada *gōdi*, Tamil *kōti*.

The age of this loanword is not clear, due to the mixture of Iranian and Dravidian influence. Other words which may indicate an old Western substrate are *śaṇa*, *sarṣapa*, *śimśap* "mustard".[40] The words go back to untraceable pre-Indo-Iranian, perhaps to the same Bactrian-Margianan language that may have contributed words such as those for "brick". While bricks are not mentioned in the Ṛgveda, the word *iṣṭakā-* occurs since the early Yajurveda.[41] In Vedic India houses were built from wood, bamboo, strawmats, etc. (Rau 1983). Yet, as Staal (1983) notes, there is also Avestan *ištiiā-* (and Old Pers. *išti*, cf. northern Pers. *hišt*, and perhaps also Toch. *iścem* "clay"). Obviously, the Vedic word was altered according to the past passive participle *iṣṭa* - "offered" (Wackernagel-Debrunner 1957,II,2: 143; Vishva Bandhu 1935 *s.v.*) At any rate, this indicates the Indo-Iranian age of the word, and as the words slightly differ from each other in their suffixes, origin as a loan word from some unknown pre-Aryan culture should be considered. The Bactrian-Margiana Archaeological Complex (BMAC - Sarianidi 1990; Hiebert in Chapter 8 of this volume), with its extensive use of bricks, which existed until the early 2nd millennium B.C., is a good candidate both for Indo-Aryan as well as for Iranian.

As such, the word for "brick" forms part of a larger but unstudied group of words of culture, animals and plants of the gerater Indo-Iranian-speaking area. Words such as Vedic *bhiṣaj*/Avestan *baešaz* (with its unique *guṇa* formation) "healer", etc. are to be added here. Some words may even be traced back much beyond this level, such as the accidental (?) identity of the word for "dog": Nahali *sita*, Ainu *sita*. These seemingly random correspondances, which occur at a very low, substratum level in areas that have been overlaid by several other languages in the course of history, should be investigated further.

To return to the names for plants and animals, local species have non-Sanskritic (or coined) names, just as almost everything connected with agriculture (Kuiper 1991). Only a few Indo-European words relating to agriculture survive in Sanskrit (*sītā* "furrow", *kṛṣ* "to plough", *kṛṣṭi* "furrow", *bhaṅga* "cannabis", *yava* "barley"). That the authors of the Veda clearly relied on pastoralism, with a little agriculture on the side, is shown not only by the language but also by the contents of their literature. Much of the tedious work of cultivation (especially of rice which, as we have seen, first appears in the Atharvaveda), was

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[40] Cf also Mayrhofer 1956 s.v. *siṃha* "lion", *puṇḍarīka* "tiger" (cf. *dvīpin*, Mayrhofer 1986). The words go back to untraceable pre-Indo-Iranian and pre-Tibeto-Burmese forms. Cf also Bask. words for "apple" (Berger 1956, 1959), as well as Witzel (forthcoming) on *kamboja*, *śambu*, *Karkota*, *śarkoṭa*, etc. - Mayrhofer 1956,III: 292.

[41] MS, KS, KpS, TS., VS; mostly in prose only, but already in some *mantras* also: MS 2.7.15, 2.13.16; KS 16.16; TS 4.2.9.2.d; VS 17.2, 35.8, etc..

left to the local population; instead the authors of the Vedas concentrated their energies on rearing their cattle, an occupation which they regarded in the manner of the Masai as their own preserve: since God gave the cows to us, "what is the use of cows with the Kīkaṭa?" (RV 3.53.14)

Place and tribal names

The same type of investigation can be carried out with regard to place names. To give an example of some English place names, successively introduced in the last 2-3 millennia: *-dunum*: London <-*lug-dunum* from Celtic; *-castrum*: Win-chester from Latin; *-ton*, *-ham*: Upping-ton/Down-ham from Old Anglo-Saxon; *-ay*/ *-vik*: Westr-ey, Ler-wick from Viking words; *-ville* from Norman French. In America we find, in addition to names transferred from Europe, many Indian names: Massachussetts, Wachussetts, Mississippi, Missuori, Chicago etc.

In South Asia, relatively few pre-Indo-Aryan place names survive in the North; however, many more in central and southern India. Indo-Aryan place names are generally not very old, since the towns themselves are relatively late. Examples: Indraprastha -> Delhi; Pātaliputra -> Patna; Rohītakakula -> Rohitaka -> Rohtak. Also, Himavant, Himālaya -> Nepali *Himal*, etc. Tribal names shift perhaps even more frequently, and several disappear altogether: Kamboja (cf. Cambyses) -> transferred to SE Asia; Bharata -> Kuru -> Sūrasena -> Brāj etc. Shifts also occur in content: Nāga (demigods) -> tribal names (Chota Nāgpur, Nāgaland); Yavana "Greek" -> Turks, Western Muslims, "barbarians"; Turuṣka "Turk" -> Muslim.

From a much older level, perhaps is the term for "non-Sanskrit speaking outsider/foreigner": Mleccha, "Indus people" -> foreigner, unable to speak Vedic Sanskrit (Cf. Pāli *Milakkhu*, Babylonian *Meluḫḫa*). Even the term *Yavana* must be old, perhaps a loan word via some language of Asia Minor and Iran, since *Iōn* <- * *iaFōn-* is of the level of archaic Greek. All of this once again points to early Western contacts,[42] such as visible in the word for "wheat".

Hydronomy

A better case for the early linguistic and ethnic history of South Asia can be made by investigating the names of rivers. In Europe, river names were found to reflect the languages spoken before the influx of Indo-European speaking popu-

[42] For early contact see also *Babiru-* in the Jātakas and the word for "monkey" (*qōph*) in Hebrew etc.; but see Mayrhofer 1956: Appendix and Mayrhofer 1986.

lations.[43] They are thus older than c. 4500-2500 B.C. (depending on the date of the spread of Indo-European languages in various parts of Europe). It would be fascinating to gain a similar vantage point for the prehistory of South Asia but apart from a few proposals such an attempt is yet to be made.[44]

Rivers often carry different names, sometimes more than two, along their courses. Even in a homogenous, monolingual country, such as Japan, this can be the case as names change as soon as the river passes through a major mountain range. In South Asia, to quote one well-known example, the *Bhāgīrathī* and the *Alaknandā* become the *Gaṅgā*.[45] This increases the probability of multiple names from various languages for one and the same river, of which only one may have survived in our sources. Furthermore, some of the typical designations of rivers, for example in Nepal (Witzel 1993), contain the local word for "river" or "stream" (*-khola/gāḍ, -di/ri, -khu, -ku, -wa, -kuwa*, etc.) A particular cluster generally agrees with the region of a particular tribe. The same can be seen in the name of the river *Gaṇḍak* (in northern India), or *Gaṇḍakī* (in Nepal), which reflects the Muṇḍa word for "water", *gandak*. Interestingly, the same river seems to be called *Sadānīrā* "always having water" in the Veda (ŚB), a term which appears coined, rather than a translated loanword.

However, in northern India rivers in general have early Sanskrit names from the Vedic period, and names derived from the daughter languages of Sanskrit later on. This trend is already quite clear in the Ṛgvedic hymn (10.75 - Stein 1917) in praise of rivers which mentions, among others, the *Kubhā* (Kabul), *Sindhu* (Indus), *Rasā*, *Krumu* (Kurram), *Mehatnu*, *Gomatī* (Gomal), *Vipās* (Beas), *Asiknī* (Chenab), *Śutudrī* (Satlej), *Sarasvatī* (Ghaggar-Hakra), *Dṛṣadvatī*, *Yamunā* and *Gaṅgā*. In later Vedic texts we find Sanskrit names also in the more eastern regions of northern India: *Sarayu*, *Gomatī*, *Sadānīrā* etc.

It is interesting to note, however, that some of these names are found in Iranian forms closer to the older, Ṛgvedic home of the Vedic tribes: the *Rasā* as the *Ranhā* (the mythical river of the Avesta), the *Sarayu* as the *Haroiiu* in the Herat area, the *Sarasvatī* as the *Harax^{v}aiti* ("the one with many ponds") in Sīstān/Helmand (<*Setumant* "the one with dams"), the *Gomatī* as the *Gomal* ("the one with cows"), and the *Sindhu* as the *Hindu*/*Həṇḍu* ("the border river"). It seems that the Iranians simply changed the old Indo-Iranian names into their respective Iranian forms when they moved into the area, while the Vedic, Indo-Aryan speakers took some of these names with them eastwards, up to Bihar, in the typical fashion of people on the move.[46]

[43] By Krahe and his school on Old European Hydronomy: Krahe 1962, 1964. But see also Schmid 1968.

[44] See Pinnow 1954; Witzel 1993. R. Shafer's (1954) identifications usually go too far.

[45] Cf. also *Kalindī*, the name of a tributary of the *Gaṅgā* (Rām. 2.55.4, 12, 13) and *Maṇḍākinī*.

[46] Cf. *New York, New London*, although the transfer of river names to N. America has been rare.

River names in northern India are thus principally Sanskrit, with few indications of Dravidian, Muṇḍa or Tibeto-Burmese names. However, *Kosala*, with its uncharacteristic *-s-* after *-o-* may be Tibeto-Burmese (Sanskrit rules would demand *Koṣala* or *Kośala*, a corrected form that is indeed adopted in the Epics). This older form has been preserved as early as the Middle Vedic ŚB (c. 7th-6th centuries B.C.), designating the country to the east of Oudh, and thus the authenticity of the intervocalic *-s-* cannot be doubted[47] and we have to regard *Kosala* as a foreign word in Vedic Sanskrit. It may be explained as follows: there are several names of tribes or countries ending in *-la* (viz. *-ra*, almost an allophone form in early Vedic);[48] the word *kosa-* would then have to be explained as other Tibeto-Burmese river names.[49]

Newarī *-khu* occurs in many names of streams, and in eastern Nepal river names in *-khu, -ku, -gu* abound. It is likely that the Sanskrit word is based on an old Kirāta[50] (e.g. Rai) word *ko/ku*. Furthermore, there are in Central and Eastern Nepal[51] a few words with the otherwise unattested supplement *-si*, such as Newarī *khu-si* "steramlet",[52] Rai *hongku roksī* "stream", and the river name *Ro-si* on the eastern slopes of the Kathmandu Valley, the place name *Junbe-si* in Eastern Nepal which is based on the river called *Beni*, and finally the great river *Ko-si* of Eastern Nepal.

The supplement *-si* found in *Kosi* must be old, indeed, as the river appears in Sanskrit literature as early as the Rāmāyaṇa and the Mahābhārata, under the form *Kauśikī*,[53] where *-ś-* is due to the pressure of Sanskrit phonetical rules which would otherwise require * *Kauṣikā*, * *Koṣala*; cf. also the later forms with the normal development of *ś* > *s* or retention of the older *-s-*: Prākṛt *Kosiyā*, Pāli *Kosikī*, Hindi *Kosī*, and *Kośala*, Pāli *Kosala*.

To sum up, what does the evidence of hydronomy tell us? Clearly there has been an almost complete Indo-Aryanisation in northern India; this has progressed much less in southern India and in the often inaccessible parts of central

[47] As is well known, the transmission of Vedic texts has been so extraordinarily faithful that words, sounds, and even the tone (pitch) accents went unchanged for more than 2000 years.

[48] *Śākala* (AB), *Śākalya* (ŚB), *Kosala* (ŚB), *-Tosala* (AV-Par., Hariv.), *Valkala* (Mbh.), *Kuntala* (Mbh.), *Kauśala, Kerala* (Patañjali), *Utkala, Mithila, Prasthala, Mek(h)ala, Kayaṅgalā*; cf. also: *Pañcāla* (KS, MS+), *Nepāla* (AV-Par.). A Vedic form **Koṣila/Kosila* is unlikely as there are only a few words with the suffix *-ila* in early Skt (Wackernagel-Debrunner 1957,II: 362 ff.).

[49] The territorial name *Kosala* must be based on the name of a large stream such as the *Sarayu/Gogra*, or the *Gaṇḍakī* (Note that in the Mahābhārata the Kosala people are called *Gaṇḍakāḥ*).

[50] We do not know much, of course, about the identity of these mountain tribes which one should rather place in Himachal Pradesh and perhaps also in Western Nepal, in the border areas of Vedic settlement. The Kirāta, however, are mentioned already in some of the earliest Vedic texts (AV, VS) as mountaineers and cave-dwellers: *Kirāta, Kilāta, Kailāta, Kairātika*; cf. also Prākṛt *Cilada*

[51] In Western Nepal, there is the *Mu-si Kholā*, an eastern tributary of the upper Marsyandi.

[52] Cf. also Nepālī *kholsi/ci* "river".

[53] In a local history, the Gopālarājavaṃśāvalī, of c. 1390 AD. the river is called *Kośakī*.

India. In the northwest there are only a few exceptions, such as the names of the rivers *Gaṅgā, Śutudrī*, and perhaps *Kubhā* (Mayrhofer 1956-1976) In the north-east the situation is similar, although a few older names can be discerned: instead of the Vedic *Sadānīrā*, the mediaeval and modern names were *Kauśikā* and *Kosī*, viz. *Gaṇḍak* (*ī*).

This leads to the conclusion that the Indo-Aryan influence, whether due to actual settlement, acculturation or, if one prefers, the substitution of Indo-Aryan names for local ones, was powerful enough from early on to replace local names, in spite of the well-known conservatism of river names. This is especially surprising in the area once occupied by the Indus Civilisation where one would have expected the survival of older names, as has been the case in Europe and the Near East. At the least, one would expect a palimpsest, as found in New England with the name of the state of Massachussetts next to the Charles River, formerly called the Massachussetts River, and such new adaptations as Stony Brook, Muddy Creek, Red River, etc. next to the adaptations of Indian names such as the Mississippi and the Missouri. The failure to preserve old hydronomes even in the Indus Valley (with a few exceptions, noted above) indicates the extent of the social and political collapse experienced by the local population.

The South Asian Sprachbund

In an earlier section we have outlined a rough division of labour, with the Vedic people monopolising cattle rearing but leaving the bulk of cultivation to others.[54] Such a social setup depends heavily on the daily interaction of the dominant and subordinate classes, and the resultant principles of social organisation soon appear with the emergence of the "caste system" in the late Ṛgveda, made up of the four classes of Brāhmaṇas, Kṣatriyas (=Rājanyas), Vaiśyas and Śūdras.[55] In the main area of settlement of the Ṛgvedic Indo-Aryans, in eastern Afghanistan and the Panjab, as well as in areas they expanded to later, such as Haryana and the Gaṅgā-Yamunā Doāb, the speakers of Vedic must have, thus, been in close contact with the (various) local populations.

In the Western Doāb (note the name *Gaṇḍakī*) and, apparently, even further west, early contact not only with Dravidian-speaking but also with Muṇḍa peoples is very likely to have taken place (Witzel n.d.). This is not the place to discuss the probable ancestral home(s?) of Dravidian languages, although the

[54] The system is reminiscent of the kingdom of the Visigoths in Spain, which enacted laws dealing with the cattle of the Germanic Goths, but neglected to do so with regard to the land and property of the Celto-Iberic farmers - in spite of the fact that Spain had been one of the "breadbaskets" of the Roman Empire.

[55] First outlined in RV 10.90, which P.Mus has called the "constitution of India".

remnants of northern Dravidian such as Brahui in Baluchistan point to a settlement of Dravidian speakers far to the north of their present distribution. A contact zone in Sindh and beyond is likely, and has been proposed for Māhārāṣṭrī (Southworth 1990, this volume).

Such linguistic contacts have left their traces not only in vocabulary but also in other areas of the language; in contrast to its close relatives in Iran (Avestan, Old Persian) Vedic Sanskrit is already an *Indian* language. Indeed, all the languages that have been spoken in South Asia have, over the course of millennia, influenced each other so thoroughly that we can speak of a South Asian *Sprachbund* (cf. Emeneau 1956; Jakobson 1962; Masica 1976), imitating the Balkans where languages belonging to four or five families have been in close contact for millennia and consequently greatly influenced each other by *calque*-type borrowing, which extends to grammatical features.[56]

F.B.J. Kuiper's work, including his latest book on loanwords in the Ṛgveda, indicates that the South Asian linguistic area seems to date back longer than we usually care to admit. In his long article on its genesis (Kuiper 1967) he traces the influence of the substratum in the use of *iti*,[57] in the two forms of the gerund which presupposes a long time of "subliterary" usage[58] prior to acceptance into the high, poetical language, and in the spread of retroflex sounds such as *ṭ*, *ḍ*, *ṇ*, and *ṣ*.[59] In this respect, it should be mentioned that virtually every language that entered the Subcontinent from the west was influenced by the last feature, even Pashto[60] and Baluchi, whose speakers arrived only about a thousand years ago. To put it somewhat facetiously, only English escaped the trend, and in Indian pronunciation and transcription not even that (as shown by, for example, *tea* = *ṭī*). Consequently, Kuiper (1991) concludes that "between the arrival of the Aryans ... and the formation of the oldest hymns of the Ṛgveda a much longer period must have elapsed than is normally thought".

A rather long period of acculturation is also visible in the appearance of "Aryan" kings with non-Indo-Aryan names, such as *Balbūtha* and *Bṛbu*.[61] in

[56] The very concept of the *Sprachbund* was developed in the Balkans. To quote but one example of mutual influence: Rumanian (a "daughter" of Latin) and Bulgarian (a Slavic language with an old-Turkic, i.e. Bulgar adstrate) both have a postposited article, attached to the noun. For example, imperator-*ul* Romani-*lor* "the emperor of the Romans" in Rumanian and pervi-*yat* "the first" and drugi-*yat* "the second" in Bulgarian

[57] A feature found here and there in Asia, incidentally, stretching from Hittite to Japanese. This quotation mark is ...*to* in Japanese, ... *bhanne* "saying" in Nepali, etc.

[58] As the *tu*- stem is rather archaic even in the Ṛgveda.

[59] A fetaure stressed already in K. Hoffmann's (unpublished) doctoral dissertation dealing with words having medial -*ṇḍ*- in the RV (Munich 1941).

[60] Whose speakers can now be traced even in BŚS 18.44:397.9 as *Pārśavaḥ* which is linguistically identical with the name of the Persians (*Parśu* = Old Pers. *Pārsa*). Witzel 1989a: 235.

[61] On non-Indo-Aryan names among the Vedic "kings" (rather, "chieftains") and even among their poets see Kuiper 1991: 6 ff; Witzel 1989b: 1-4.

fact, this is just one of the many features which point, in spite of the constant warfare documented in the Ṛgveda, to a rather close relationship between the in-coming Indo-Aryans and local populations, with the result that the latter became gradually "Aryanised".[62] Not only the language, but also the culture of the newly arrived elite was appropriated, including the Vedic "tank", the horse-drawn chariot. In the words of F. Southworth (1974), echoed by Kuiper (1991: 8), "the equation of Indo-Aryan speakers with "Aryans" (i.e. the original intruders and their direct descendants) is not supported by the historical evidence" and "As a sociological term, "Aryan" denotes all those who took part in the sacrifices and festivals" (Kuiper 1991: 96).

To sum up, we can gather several facts from a linguistic analysis of loan-words, place names and areal features characterising the South Asian *Sprachbund*; above all, the presence of Dravidian, Muṇḍa, and apparently also of Tibeto-Burmese speakers in northern India, up to the borders of Bengal, at the time of the infiltration and spread of Indo-Aryan speakers. The multitude of animal and plant names, as well as terms for agriculture, point to the importance of the speakers of these languages to the social structure and economy of early India. These groups, however, were of a fairly low social position and were not able - even to the extent that native North Americans were - to maintain their local place names, which were almost without exception taken over by new, Sanskrit ones. Further conclusions will be offered below, but not before a brief digression regarding the preceding, Indo-Iranian, period.

The Indo-Iranian period

This is a topic on which Asko Parpola, in particular, has writen extensively in recent years, attempting to reconcile historical and archaeological evidence.[63] Our starting point on linguistic grounds[64] must remain the presence of a branch of Indo-Aryans in Northern Mesopotamia before c. 1380 B.C., names of whose deities - *Varuṇa, Mitra, Indra* and *Nāsatya* (*Aśvin*) - have come down to us in a Mitanni-Hittite agreement. The terminology of horse care and horse racing as taught by the Mitanni Kikkuli to the Hittites was Indo-Aryan as well, as shown by the Indian form of *a^{i}ka-^{u}artana* (as opposed to Proto-Iranian **a^{iu}a-^{u}artana*).

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[62] Cf sentences such as RV 9.63.5 *indraṃ vardhanto apturaḥ kṛṇvanto viśvam āryam / apaghnanto arāvṇaḥ.*

[63] See especially Parpola 1973, 1988; Ghirshman (1977) has offered a detailed and, perhaps, equally idiosyncratic scenario for Iran, suggesting the presence of Indo-Aryans in the Gorgan region of Northern Iran already by c. 3000 B.C..

[64] Cf Mayrhofer 1974. Note also the Kassites with Šuriiaš (Mayrhofer 1976: 496).

Other evidence, from Mitanni and Neo-Hittite sources, indicates that the names of Mitanni kings were traditionally Indo-Aryan, even though the Mitanni belonged to the Hurrian-speaking peoples. We therefore surmise that the Mitanni once lived close to an early Indo-Aryan group, that had perhaps taken a dominant position over the pre-Mitanni population, and then became quickly acculturated as Hurrian speakers.

The linguistic evidence in the Vedic texts themselves points, of course, to a close relationship with the Iranian speaking tribes. However, it is not entirely clear where the combined Indo-Iranians lived together before they left for Iran and India, when they went on their separate ways, by which routes, and in what order. Furthermore, as G. Morgenstierne (1975; cf. Hoffmann 1992: 828) has shown, the Kafirs or Nūristānīs constitute a third branch of the Indo-Iranians who were early on isolated in the impenetrable valleys of the Kunar and its tributaries. They have kept several archaic features of Indo-Iranian which in some cases[65] were lost already by the time that early Vedic and Iranian were composed and recorded. Some, newly discovered, evidence may point to still another, perhaps Western, Indo-European-speaking immigrant group that has left traces in the high Himalayas.[66]

The hydronomic evidence mentioned above, however, points to an early Indo-Aryan settlement in Afghanistan, before the pre-Vedic names were Iranised (*Sarasvatī, Sarayu, Gomatī, Sindhu*, etc.), although there are, in the opinion of some scholars (Hoffmann 1975), some Iranian names in Ṛgveda (*Kaśu, Kanīta*, etc.)

An earlier Indo-Aryan settlement, or indirect influence even in northern Mesopotamia has already been mentioned. But there are also indications, for the most part listed by Parpola (1988) of reminiscences of the Vedic people of their stay in Central Asia or, at least, of old connections with people whom we know to have lived in there from old Iranian sources and classical authors. These include (see the second paper as well as Werner 1986) the rivers *Rasā* and *Sindhu*, the ethnic group called *Paṇi* as well as *Dasa/Dāsa/Dasyu* tribes. To this may be added, perhaps, a very faint recollection of the Rhipaean (Ural) mountains, if we want to believe the Russian author G. Bongard-Levin (1980).

Language takeover

The evidence assembled above from hydronomy, tribal names and older words of culture makes it unlikely that the Indo-Iranian or, more specifically, Indo-Aryan

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[65] Such as Kāfirī *dac* :: Vedic *daśa* :: Iranian *daha* from Indo-Iranian **daca*.

[66] In some levels of the Bangani dialect of Pahari; see Zoller 1987. The older levels of the Tibeto-Burmese language should also be investigated more closely. Cf. S.D. Sharma 1986.

languages have "simply" been taken over from some border tribes through "extensive trade networks" and similar contacts as J. Shaffer extrapolates from just one among many factors of language dispersal and/or replacement.[67] There are diverse scenarios of language coexistence and superimposition, the effects of which vary widely.

(1) Certain situations do, indeed, favour the use of a trading language as *lingua franca*, and a prestigious language may thus be used widely for simple communication processes: Swahili in East Africa, Nepali in the Himalayas, English in South Asia, Pidgin English in Papua-New Guinea etc.. Usually, however, a trading language does *not* replace the various local languages and dialects. Although such an explanation may be attractive to archaeologists, given the relative ease with which trading patterns can be established, it is clearly inapplicable in the South Asian case.

(2) An entire class of explanations may be charcterised (after Renfrew 1987) as depending on a model of "elite dominance". However, this process can have a variety of outcomes. A *lingua franca* can certainly become the dominant language if sustained by political power: for example, Vulgar Latin developed into the various Romance languages, Arabic emerged as the dominant language of North Africa, and many parts of Sub-Saharan Africa may also see the increasing adoption of a limited number of languages spoken by European colonisers (English, French, Spanish and Portuguese in particular). However, note even here the survival of Basque and various Celtic languages in Britain and France, of various Berber and Tuaregh languages in North Africa and of Swahili in East Africa.

In other cases, even with political backing the outcome is unpredictable: Aramaic was widely used throughout the Persian Empire and yet survived it only in some pockets of the Levant. Turkish, likewise, did not survive the Ottoman Empire in the Balkans and we may now wonder about the fate of Russian in Central Asia. Even in cases where a dominant group tries to impose its language on a conquered population and retains control, the outcome is not certain: Norman French heavily influenced and nearly replaced Anglo-Saxon speech in the first few centuries after 1066 A.D., but, in the end, it did not succeed.

That said, there have been cases where dominant languages succeeded in replacing (almost) all the local languages: this happened particularly in South America where only a few resilient pockets of native American languages (Maya, Nahuatl, Quechua, Aymara and Guarani) survived the advance of Spanish and Portuguese.

[67] Shaffer 1984; more zealously by Biswas (1990: 44): "there is no earthly reason why the young students in India should be made to swallow the theory of the so-called Aryan intrusion into India and their minds be poisoned about a fictious Aryan-Dravidian bi-*racial* paradigm". The ulterior, political motive of this "scientific" piece is obvious. Cf. Choudhury 1993; Telagiri 1993, etc..

To regard all these examples as cases of simple language takeover is a fallacy. Each case has its peculiarities: the Bolivian and Peruvian Indians may be Spanish-speaking Christians now, but a large part of them still speak native Queucha as well, and many native customs and tenets of the Inca religion survive, often in a Christian garb. Most North American Indian tribes took over the horse from the Spanish, but not their Christian mythology or language. By contrast, the speakers of the Romance languages are, for the greater part, Christian peoples of the Mediterranean with few reminders of their "pagan" Celtic, etc. past. Clearly, languages do not spread in isolation, but along with religion, material culture and political and social structures; however, the extent to which these cultural traits are adopted varies significantly from case to case.

What is relatively rare is the adoption of *complete* systems of belief, mythology and language from neighbouring peoples. In such historically documented cases additional factors such as missionary activity (Zoroastrianism, Christianity, Buddhism or, in modern times, the Cargo Cult in New Guinea or the Ghost Dance in the western USA) were at play. Economic reasons, such as proposed by Renfrew's "demography-subsistence" model for Europe (Renfrew 1987) would have been insufficient: in any case, were his model correct, all of Europe would now speak a descendant of the non-Indo-European, pre-Hittite, Hattic language. The transmission of cultural traits and technological inventions would not suffice either. As mentioned above, most North American Indian tribes took over the horse with enthusiasm without adopting Christian beliefs or the Spanish language. In a similar vein the Tanabata myth travelled from China to Japan or tea, silk and paper from China to the West.

Yet, in South Asia we are dealing precisely with the absorption of not only new languages but also of an entire complex of material and spiritual culture, ranging from chariotry and horsemanship to Indo-Iranian poetry whose complicated conventions are still actively used in the Ṛgveda. The old Indo-Iranian religion, centred on the opposition of *Devas* and *Asuras*, was also adopted, along with Indo-European systems of ancestor worship.[68] In dealing with this problem we must be careful to separate the adoption of language, technology and culture which may have been responses to different albeit related processes.

The complexity of the situation may, once again, be appreciated by examining the better documented case of the Norman conquest of 1066. If we did not know about the Norse origins of the Normans from written sources we would regard them as typical French knights[69] who almost succeded in imposing the

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[68] Only three ancestors out of the many generations still remembered are worshipped, and three *piṇḍas* are offered. Cf the Greek *tripatores*, the Russian custom of offering three *klyochki*, etc.

[69] Even their names can be taken as Franconian unless we proceed with a careful linguistic analysis which would reveal them as coming not from Western but from Northern Germanic. Incidentally, the case of the Normans offers interesting parallels with the Mitanni rulers.

French language in England. Instead, they eventually took over a - by now very much Romanised - Anglo-Saxon from their serfs. Apart from family names there are few remnants that might tell of this invasion: the importation of Norman (Norse) genetic traits, for example, has been negligible, if at all detectable among successive Celtic, Saxon, Jute and Viking migrants.[70]

Similarly, we may regard the "importation" of Indo-Aryan into the Subcontinent as the outcome of the influx of a group of clans, tribes or people who spoke early Vedic and had an Indo-Iranian, or rather Indo-Aryan, civilisation with exogamous groups of patrilineal descent, practised pastoralism and fought with horse-drawn chariots. By the time they reached the Subcontinent they were already racially mixed: emerging from the lower Volga region, and passing through Central Asia, they may have had the typical somatic characteristics of the ancient populations of the Turanian/Iranian/Afghan areas,[71] and may not have looked very different from the modern inhabitants of the Indo-Iranian Borderlands. Their genetic impact would have been negligible and, as was the case with the Normans in England, would have been "lost" in a few generations in the much larger gene pool of the Indus people.[72] One should not, therefore, be surprised that "Aryan bones" have not been found so far (Kennedy, this volume; Hemphill, Lukacs and Kennedy 1991). Indeed, the Ṛgveda refers to a certain amount of symbiosis from early on, evidenced by the non-Indo-Aryan names of *Bṛbu* and *Balbutha* (who is explicitly called a *Dāsa*).

There is the further possibility that Indo-Aryan speakers, even before their immigration into South Asia, completely "Aryanised" a local population, for example in the highly developed Turkmenian-Bactrian area which yielded the BMAC, involving both their language and culture. This is only imaginable as the result of the complete acculturation of both groups. To an outside observer the local Bactrians would have appeared as a typically "Vedic" people with a Vedic civilisation.[73] Later on, (part of) this new people would have moved into the Panjab, assimilating ("Aryanising") the local population (at around the same time as the Kassites and the Mitanni - both neighbours of early Indo-Aryan speakers - made significant inroads into Mesopotamia).

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[70] A historically and sociologically similar case is the one of Bulgaria, where Turkish invaders briefly superimposed their language on a Slavic speaking population which itself was superimposed on a Thracian substratum.

[71] Although, some European strains may also have been present; in *one* instance the Vedic texts speak of a "gold-haired" (*hiraṇya-keśin*) person.

[72] Even the more visible case of African-Americans is not as hard and fast as one supposes, since due to intermarriage their genetic makeup is reported to be only about 30% African.

[73] Note that Bactria was not only a staging area for invasions into South Asia but also an area where relatively quick acculturation has always taken place. See the example of the Central Asian Yue Ji, the Kuṣāṇa, the Gurjara (?), the Turks of the Turkī Śāhi dynasty and the Turks and Mongols of Babur and Akbar, etc.

In both scenarios the immigrant group was politically dominant because of its new military technology and tactics, especially the horse-drawn chariot which was quickly taken over by all major states in Egypt, Mesopotamia and China (Mair 1990: 44), although *without taking over the language of the chariot drivers*. The first appearance of thundering chariots must have stricken the local population with a terror[74] similar to that experienced by the Aztecs and Incas upon the arrival of the iron-clad, horse-riding Spaniards.

In addition, the Indo-Aryans arrived, as we will see, in the Panjab at a time when the Indus Civilisation was already beyond its peak and was disintegrating into local village cultures, which may explain why the chariot was not adopted by it as it was in the Near Eastern states. The Vedic texts do not know of a single town prior to the second urbanisation in the Gaṅgā Valley, but speak of "ruined places" and even a "big ruined palace" (*armaka*,[75] *mahāvailasthāna*). In later texts, such as the Brāhmaṇas, the Sarasvatī Valley is singled out as a place of potsherd-yielding ruins.[76] The situation resembles the arrival of the Spaniards in the Maya lowlands (though not in the Aztec and Inca realms).

In sum, we have to use a model different from that of the archaeologists who first discovered the Indus Civilisation, such as the conquest theory of Wheeler (1946), and also different from the "anti-linguistic" theories of more recent archaeologists such as Shaffer (1984, 1986, 1993). Indeed, Vedic specialists have for some time already been thinking of a gradual trickling in, and subsequent rise to dominance, of Vedic tribes in the Panjab (Kuiper 1991). These "Aryans" combined racial, linguistic and cultural characteristics (Kuiper 1991, Southworth 1974 etc.), which would have to be carefully separated. This model does not exclude, indeed it includes, those who imitated the Indo-Aryans: certain local leaders, chieftains, who have taken over the model of Vedic culture to support their own claims and who, in the process, became completely "Aryanised". Such a process may have evolved in the manner of the Mitanni (and, in a different context, much of Hittite) culture: initial domination by Indo-Aryan-speaking, somatically and to some extent culturally already "Turanian" tribes in the Panjab, followed by quick acculturation. While in the Mitanni case the Indo-Aryan element was assimilated to the Hurrian one, it remained dominant in the

[74] Something of this fear of the horse and of the thundering chariot, the "tank" of the 2nd millennium B.C., is transparent in the famous horse *Dadhikrā* of the Pūru king *Trasadasyu* ("tremble enemy!") in RV 4.38.8: "And they fear the attack of the threatening (horses) like thunder from heaven. When thousands fought him, he was not to be stopped, when the terrible one runs in front".

[75] See Burrow 1963; Falk 1983; Rau 1977 and Rau 1981 for a range of opinions on this topic and on Vedic fortification.

[76] Given the high density of settlement in this area during the 4th-3rd millennia B.C. (Mughal 1990), this is hardly surprising.

Panjab, just as Hittite superseded, not without being heavily modified, the non-Indo-European Hattic.

Methodological Observations

In conclusion, one must examine the "method" by which the present kind of investigation into the early history of South Asia may be carried out. Apart from research in linguistic history and "linguistic palaeontology", as briefly attempted above, we have to concentrate on textual data from the Vedas, as attempted in my second paper, and from the early Buddhist texts in Pāli. They can then be compared both with the linguistic data and with the findings of archaeology. The materials have to be collected from these texts by *philological methods*.

I cannot give a detailed exposition of these methods here. But since philology is frequently misunderstood and confused with other approaches in North America, I may quote the consensus of a recent brief but well attended conference at Harvard (1988) on the question: "What is philology?" The participants readily agreed that "philology is a *Kulturwissenschaft* based on texts"; the study of a civilisation based on oral and written texts, in contradistinction to such subjects as linguistics, history, archaeology and sociology which also make use of other categories of evidence.

In the present case, to use philological methods means to painstakingly assemble a collection of often minute observations on a wide range of topics, from dialect features to differences of ritual or to the geographical spread of key ideas (Witzel 1989a, n.d.) A small dialect variant in a text may indicate, if taken together with other observations, an important economic or historical event. Such conclusions are not, of course, unique to South Asia.[77] It is the analysis of a collection of such features that leads to important new discoveries.

In all investigations we must take into account the many difficulties of interpretation posed by Vedic texts, particularly the Ṛgveda, as well as their sketchy (in places still nonexistent) geographical and chronological framework. Only then can we proceed to an evaluation of all these minute and disparate facts, and finally make them applicable for a description and interpretation of ancient South Asian history. In many cases, our procedure will lead to a reinterpretation of commonly held opinions, especially of the archaeological remains; particularly

[77] The form of the Latin word for cattle (*bōs, bovis*) indicates a non-Roman, tribal origin and is due to trade with people outside the city. Or, the difference in the form of the European loan word for "tea" indicates two routes of transmission from two parts of China: the northern one to Russia and India (*chai*), and the southern - overseas - one to western Europe (*tea, thé, Tee* etc.). The same development could be seen in the various terms for "rice", examined above.

in light of new work on the Vedic literature which has for too long been overlooked in favour of the flawed testimony of the Epics and Purāṇas.

Obstacles of interpretation

Without the application of solid philological methods to our sources, the writing of the early history of South Asia runs into several obstacles. One is a certain western "bias": not only the inherent problem of interpreting any historically or culturally distant text through the filter of one's own historical past, as well as present cultural partiality, but the application of various theories taken over from old but still influential books. Typical examples in archaeology include Wheeler's postulate of Aryan invasions and the resultant massacre of the native inhabitants, or the superimposition of linguistic features on evidence gathered from poorly translated Vedic texts or from limited (and poorly published) archaeological excavations. The equation of archaeological cultures with the speakers of Indo-Aryan, who are in turn equated with the "Vedic people", is a particularly common failing, yet far-reaching conclusions have resulted from it.

Then, there is the confident reliance on a few, frequently poorly translated Vedic texts[78] and continuing use of Epic and Purāṇic texts, which have already been repeatedly criticised in this paper. Lack of cooperation with Vedic scholars is, of course, partially responsible for this fiasco; it has engendered the view that the field of Vedic studies has advanced little recently. Yet, in addition to the detailed description of Vedic society and material culture (Rau 1957, 1983), the progress in localising and even dating Vedic texts has been considerable and with the existence of a nearly complete word index (Vishva Bandhu 1935-) a thorough survey of the period is no longer a distant prospect.

However, there are also pronounced and definite South Asian biases to hold us back: in particular the vision of an eternal, immutable Veda composed by primordial sages thousands of years ago,[79] in a "northern" - even Polar (Tilak 1903) - location, or the contrary view that stresses the *Indian* home of the Indo-Aryans. Even Indo-Iranians, not to mention all Indo-Europeans(!), are increasingly located in South Asia whence they are held to have migrated westward, a clearly erroneous view[80] that has, nevertheless, found its way into even otherwise respectable scholarly publications (e.g. Biswas, quoted above, in Ray and

[78] See, for example the Allchins' (1982) adoption of Burrow's (1963) views on the nature of the Vedic term *armaka*; the correct meaning of the term is still under discussion, and Burrow's views are based partly on a misinterpretation of some stanzas (due to the use of an unreliable edition of the TB) of which the archaeologists are clearly unaware.

[79] A view adopted by some western scholars as well: e.g. Frawley 1986.

[80] Most recently propagated by Choudhury (1993), whose books also include *The Indian Origins of the Chinese Nation*, and Telagiri (1993).

Mukherjee 1990). There is, finally, the belief in an *old* Epic and an *old* Purāṇa, contemporary with the Veda, supposed to have been compiled by a person called Vyāsa ("redactor"!). Such speculations further cloud the scientific evaluation of textual sources, and can only be regarded as examples of modern Hindu exegetical or apologetic religious writing; even if they do not always come with the requisite label warning us of their real intentions.[81]

To conclude, one cannot stress strongly enough the need to abandon preconceived notions (Western as well as Indian) about early South Asian history. This will certainly come about more easily through the cooperation of archaeologists, linguists, historians and philologists, and it is to be hoped that the contributions to this volume have taken some important first steps in this direction.

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[81] Cf the writings of B.B. Lal on archaeology and the epics (Lal 1981).

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5. The concepts of "cultural traditon" and "palaeoethnicity" in South Asian archaeology

Archaeological research since 1980 has expanded knowledge of South Asian cultural history and altered interpretative frameworks (for summary discussions see: Kenoyer 1991; Possehl and Rissman 1992; Shaffer 1992a, 1992b). Most prior interpretations attributed significant cultural developments, except early hunting-gathering adaptations, to external factors such as ethnic intrusions or invasions, diffusing ideas and technologies developed outside the region, usually in the West (Chakrabarti 1982; Shaffer 1984). Current information, however, suggests that these earlier, still persisting interpretations cannot explain the cultural complexities now found in the archaeological record.

Available data indicate that South Asian cultural history must be studied within a context of indigenous cultural continuity, not intrusion and discontinuity. However, explaining indigenous cultural development within a context of continuity that allows for variable rates of change, and a degree of external interactions, is a difficult task without resorting to the inevitability of social evolution, complex systemic paradigms, "world systems" theory, ecological factors, or "Parsonian" geniuses and deviants. It will be proposed here that this difficulty may be partly resolved by expanding the concepts of *cultural tradition* and *palaeoethnicity* (Shaffer 1992a, 1993; Shaffer and Lichtenstein 1989) to incorporate aspects of Bourdieu's "practice theory" (Bourdieu 1978, 1984, 1990; also, Bentley 1987; Ortner 1984, 1989; Roscoe 1993). The discussion below summarizes these concepts, notes important recent archaeological developments in South Asia, and explores the application of these concepts to South Asian cultural history.

Piggott and Wheeler: The Past is Present

Two of this century's most influential scholars in South Asian archaeology, especially Harappan studies, were Stuart Piggott (b. 1910) and Sir Mortimer

Wheeler (1890-1976). Piggott's *Prehistoric India*, published in 1950, presented interpretations about Harappan culture that continue to influence recent analytical paradigms: for example, that it was independent of earlier agricultural groups in the region. Harappan society was also viewed as culturally and materially very conservative, but one which possessed a highly centralised state or "empire"-level organisation with twin capital cities, and was dominated by priest kings. Although some of these interpretations originated in earlier scholarly works - by Marshall, Mackay and Vats, to mention a few - it was the presentation of these earlier views, combined with a masterful summary of archaeological data by a highly respected scholar in a widely available paperback edition, that fixed them among scholars and non-professionals.

Piggott's book also reflected Wheeler's early interpretations which appeared in his many widely available archaeological summaries published between 1953 and 1968. Wheeler's influence upon South Asian archaeology, however, exceeded Piggott's and others because he trained the first generation of post-independence, indigenous archaeological scholars in South Asia, several of whom continue to be professionally active. Wheeler taught both archaeological method and theory, as well as his and Piggott's interpretations which, although elaborated by new discoveries, remained essentially unaltered in his students' publications. Furthermore, Wheeler (Clark 1979) was greatly admired by a wide variety of South Asian and Western scholars and thus his influence exceeded the narrow scope of regional archaeology. To fully understand recent developments in South Asian archaeology or Harappan studies, it is necessary to ascertain what general scholarly influences affected these men.

Both Piggott and Wheeler, trained in England before World War II, had a background emphasising western European, primarily English, archaeology that influenced subsequent interpretations throughout their careers, especially Piggott's. Archaeological interpretative frameworks at that time, like other disciplines, reflected "Victorian ideas of progress" (Bowler 1989; Bernal 1987) that attempted to adapt accumulating data for evolutionary change within basic Christian and accepted historical tenets. Especially in European archaeology, they were dominated throughout the first half of the twentieth century by notions of cyclic growth, with cycles interrupted or concluded by human invasions which introduced advanced technologies or social organisations (Bowler 1989: 106-128). In other words, each major socio-economic development, such as food production or bronze metallurgy, was introduced by an intrusive cultural group which itself then entered a cyclic pattern of further development similar to an organism - early/birth, middle/mature, late/geriatric - until that group's cycle was affected by another intrusive, more "culturally advanced," group.

The palaeoanthropologists of the early twentieth century were thus able to put together a view of human evolution which can be seen as an extension of the cyclic or rhythmic theory of progress

advocated throughout the Victorian era. Despite its emphasis on struggle as the means by which higher types displaced their primitive antecedents, this was no product of Darwinian gradualism. Most of its supporters rejected natural selection as the motor of progressive evolution, preferring to invoke some vaguely defined creative force in the central Asian heartland. The fact that both the concept of progress through cycles and the fascination with Asia as the centre of development survived well into the twentieth century reveals the power these Victorian ages had to shape the imagination. The echoes of Max Müller's account of Aryan migrations can still be heard in the theories of human origins by archaeologists and anthropologists committed to the idea of continuous evolution. But once the faith in continuous progress was undermined by growing militarism in the age of imperial rivalries, the model of progress through conquest emerged from the wings to extend its influence over ideas on human origins. The early twentieth century merely extended the sense of racial destiny that had been growing throughout the Victorian era (Bowler 1989: 127-128).

The emphasis upon invasion and/or conquest, a specific type of diffusion, as an agent of culture change dominated European, especially English, archaeology, until the mid-twentieth century (Clark 1966). Therefore, the academic backgrounds of Piggott and Wheeler made it inevitable that diffusionary explanations occupied a prominent place in their interpretations of South Asian archaeology.

Nineteenth century philologists (Bowler 1989; Olender 1992; Poliakov 1974; Shaffer 1984) also invoked invasion as a primary explanation for linguistic and cultural change. Indeed, the Aryan invasion(s) into South Asia became the foundation of philological studies. The Aryan invasion(s) depicted in Vedic oral traditions, and its later literature, had by the mid-twentieth century evolved, thanks to European philology, into an unquestioned historical fact. The only major debates then remaining were the geographic locus of an Aryan homeland - Central Asia or the Ukraine - and the dates for the Aryan invasion. Even regarding the chronology there was some agreement that rates of linguistic change and linguistic relationships supposedly suggested a mid-2nd millennium B.C. date for the invasion. Therefore, decades before Piggott and Wheeler were born, there was a scholarly consensus that South Asia experienced one of the most important human invasions in history, one that immediately provided it with a linguistic pedigree by linking Sanskrit with European languages and implied a common human ancestry for these dispersed and culturally different populations. Most mid-twentieth century scholars believed it to be unlikely that the Harappans were Aryans (although see Sastri 1965). Chronologically the Harappans were too early, dating to the third, not mid-second, millennium B.C.. Furthermore, the Aryans described in Vedic legends were not, unlike the Harappans, urban dwellers. Finally, the (still undeciphered) Harappan script resembled in appearance the script used for Elamite (Mahadevan 1970), a language found in southwestern Iran, more than later scripts associated with Indo-Aryan languages. Consequently, when Piggott and Wheeler undertook their South Asian research, there was no question that at least one major invasion had taken place, ushering in important regional, linguistic and cultural changes.

Unlike D.H. Gordon, another influential British archaeologist, who attributed the Harappan culture to a direct Mesopotamian sea migration (Gordon 1958: 60), both Piggott and Wheeler remained reserved about questions concerning Harappan origins. Both scholars recognised that prior agricultural communities existed, but failed to find among them an acceptable ancestor for the Harappans. At the same time, Harappan culture appeared so different from other ancient civilisations that no foreign ancestor was apparent. Consequently, both scholars invoked the concept of stimulus diffusion from Mesopotamia to explain Harappan origins:

But it can be least averred that, however translated, the idea of civilisation came to the Indus from the Euphrates and the Tigris, and gave the Harappans their initial direction or at least informed their purpose (Wheeler 1968: 135).

Likewise Piggott and Wheeler agreed that Harappan culture developed rapidly into its "mature"/middle stage, spread quickly throughout the Indus Valley, and then declined or deteriorated severely by its "late"/geriatric phase during the mid-2nd millennium B.C.. It was these "late" Harappan groups which were destroyed by the Aryan invasion(s), despite the fact that no archaeological assemblage could be found and identified as Aryan. The pervasive power of this model is reflected by the fact that Fairservis (1961, 1967, 1975), the most outspoken critic of Wheeler's stimulus diffusion explanation, continues to adhere to a cyclic developmental model for Harappan culture, which was followed by a "Vedic Night" (Fairservis 1975: 345-377).

Using archaeological data, Piggott and Wheeler addressed a major issue of nineteenth and early twentieth century philology: how could a group of Indo-Aryan speaking peoples perpetuate a culture (i.e., Hinduism) so different from other linguistically and historically related groups? That is, how could a culture speaking the oldest Indo-Aryan (and Indo-European) language, and sharing a distant common ancestor with the English and other Europeans, promote, according to Wheeler (1968: 136), a polytheistic religion and phallic worship, pay extreme reverence to animals including a bull cult, and adhere to a social-political system governed by caste or Brahmanism? This was explained by both of them, and other scholars, as reflecting a corruption through time of the Aryans by Harappan descendants and related indigenous groups. Accordingly Aryans were responsible for:

...the ancient civic tradition of Harappa, with its bureaucracy and mercantile organisation, and the more barbarous but *invigorating* Aryan warrior-caste which could make the state strong against its enemies and implant something to offset the fatal tendency to stagnation and decay that had been Harappa's downfall (Piggott 1950: 288. Emphasis added)

Their northern cities decayed and were, if we accept the Rigveda in this context, replaced in their decadence by an insurgent barbarism, instinct with the *heroic qualities* which barbarism is liable to assume... (Wheeler 1968: 136. Emphasis added).

> The religious, _scientific and humane_ thought and learning of ancient India are known to us preeminently through the medium of the developing Indo-Aryan languages... (Allchin and Allchin 1982: 354. Emphasis added)

In other words, Aryans possessed traits consistent with a European self-perception, or at least considered "Western" in South Asian culture (see Inden 1986, 1990); conversely, non-European or negative religious and social traits reflected ancient Harappan survivals. "Otherwise we are left with the paradox that the Indus civilisation transmitted to its successors a metaphysics that endured, whilst it failed utterly to transmit ... the physical civilisation which is its present monument" (Wheeler 1968: 137). The paradigm established by Piggott and Wheeler continues to influence current archaeological interpretations (Agrawal 1982: 261-263; Allchin and Allchin 1982: 298-308).

Recent archaeological developments

The aim here is to highlight specific archaeological discoveries, interpretations and points of information pertinent to issues of cultural continuity and the application of the concepts of *cultural tradition* and *palaeoethnicity*. Three major categories of information are discussed: the origins of food production; the origins, nature and context of Harappan culture; and the events of the second millennium B.C.

The Origins of Food Production: Mehrgarh

The Mehrgarh excavations (see Jansen, Mulloy and Urban 1991 for recent summaries) near Sibri, Pakistan, changed our understanding of the origins of food production - the use of domesticated plants and animals in a neolithic context - in South Asia. Previously, food production and the entire "village way of life" were perceived as a single complex, diffused from the West sometime after 5000 B.C. (e.g., Fairservis 1975: 104-105). They, in turn, were followed by the "idea" of civilisation only a few millennia later (Wheeler 1968: 135), then by the Aryan, Greek, Muslim and British invasions. The acceptance of one incidence of cultural diffusion/invasion made the others seem that much more reasonable.

At Mehrgarh it was possible for the first time to convincingly define an "aceramic" neolithic development in South Asia. Detailed studies (Costantini 1984; Meadow 1987, 1991) of plant and animal remains suggested that domesticated species were present in the earliest levels. The plant economy, reconstructed from thousands of seed impressions in mud bricks, was quite sophisticated as the major crop was naked six-row barley (90%) followed by lesser amounts of

hulled six-row and wild two-row barleys along with einkorn, domesticated emmer and durum wheats. The presence of wild examples of wheat and barley suggests that their domestication was an indigenous process; of some antiquity, judging from the focus on six-row barley, a post-domestication development from two-row barley.

In the initial occupation, Period IA, wild animals, especially gazelle but also wild sheep, goat, cattle and water buffalo and other species, were the major source of animal protein. However, the small size of some goat bones, combined with young goats placed in a few Period IA burials, suggested that a limited number were kept and herded. Following the close of Period IB, domesticated sheep, cattle and goat constituted most of the animals used, and by the late ceramic neolithic, or Period II, almost all animal remains were of the domesticated varieties. The gradual reduction in size, a phenomenon associated with domestication, and the occurrence of wild progenitors in earlier levels, indicate that the domestication of these animals was also a local process.

Another factor at Mehrgarh suggesting the indigenous development of food production is the pattern of domestic animal utilisation. At the close of the ceramic neolithic, or Period II, after ca. 4500 B.C., domesticated cattle accounted for 60% of the animal remains, an exceptionally high frequency. Although the frequencies of cattle bones in the later chalcolithic and bronze age periods of Mehrgarh never equalled Period II [varying between 35-40% (Meadow 1991; Jarrige and Meadow 1992: 167)], they remained much higher than in adjacent, Southwest Asian regions (Caloi et al. 1977; Meadow 1986, 1987; Zeder 1991); and, at contemporary and culturally related Indus Valley sites, cattle frequencies ranged as high 70+% (Possehl and Raval 1989: 172-176). Although similar species were domesticated elsewhere, the pattern in which human actors arranged them in South Asia was distinctive to the region.

Radiocarbon measurements suggest a 7th millennium B.C. date for the aceramic neolithic occupation at Mehrgarh. However, given a sophisticated plant economy and the depth of deposits, at almost nine meters, it is possible that the cultural tradition responsible for them dates to the 8th millennium B.C. (Jarrige 1991). Although basic similarities exist, linking Mehrgarh with comparable Levantine and Zagrosian aceramic neolithic groups, "...they are sufficiently general to discount straightforward diffusion among communities that otherwise preserved their own, highly individual characteristics" (Jarrige 1991: 40). Moreover, available chronologies (Moore 1985) indicate that Mehrgarh was contemporary with comparable Southwest Asian phenomena which, combined with the absence of contemporary food producing groups on the Iranian Plateau, argues against a diffusionist explanation. The Mehrgarh data raise serious questions about diffusion as an all-encompassing explanation for major South Asian cultural developments. The sophistication of this aceramic neolithic food-producing

complex, and its early date, suggest the possibility that subsequent bronze and early iron age cultural developments were likewise indigenous.

There are other specific aspects of the Mehrgarh sequence that merit discussion since they influence later developments. The focus on cattle exploitation by the close of the ceramic neolithic, or Period II, is particularly significant. Although Meadow (1991; Jarrige and Meadow 1992) cautions that regional variation exists in the degree of focus on cattle, the pattern clearly persists into the 2nd millennium B.C. (see also Possehl and Raval 1989: 172-176). Moreover, the focus on cattle is highlighted by the excavation of a late 3rd millennium B.C., Rangpur Harappan, cattle-pastoral encampment at Oriyo Timbo (Rissman and Chitalwala 1990). In comparison with sheep and goats, cattle have larger and less versatile pasturage requirements, cannot range as far away from water, mature and reproduce more slowly and require a greater labor investment. On the other hand, these factors are compensated for by a greater quantity of dairy and non-dairy secondary products and by their use for traction (Dahl and Hjort 1976; Russell 1988; Zeder 1991). Given these characteristics, a preference for cattle, after 5000 B.C., undoubtedly influenced other social, economic and political relationships, and suggests that cultural developments in South Asia did not simply parallel those in Southwest Asia, where groups did not have a comparable bias.

The numerous and substantial mud brick "granaries" built by the close of Period IIA at Mehrgarh, in the first half of the 5th millennium B.C., suggest a concern, unparalleled in contemporary cultures, for surplus production irrespective of what was stored in them. The labour involved in their construction and maintenance argues that the responsible socio-economic units were extended families or some larger units. Mudbrick "public" architectural units, such as retaining walls, appear in Period IB, in the second half of the 6th millennium B.C.; after that "public" architectural units continue throughout the archaeological record. In addition, the earliest known mudbrick platform was identified in Mehrgarh, Period IB. Although it was associated with a cemetery and, therefore, may not have been a "public" feature, later platforms were "public" architectural features at many sites. Already in the early Mehrgarh occupations, a significant emphasis on craft activities emerged as displayed by workshop areas and finely crafted objects such as stone beads. By the close of Period II, craft activities expanded to include shell objects and pottery, foreshadowing a sophisticated and expansive development of craft specialists in later periods. By the close of Period II, at ca. 4500/4300 B.C., not only was a distinctive, domestic animal subsistence pattern established, but other cultural traits were present that would characterise this region down to the Early Historic Period.

The Mehrgarh findings are among the most significant in Asian archaeology during the last twenty years. Their importance, in part, comes from the demonstration that the "hearths of food production" need not be separated by vast geographical distances, occupy different environments, or focus on variant spe-

cies. Mehrgarh is only about 3000 km from the Levant and even closer to the Zagros Mountains; it occupied a comparable environment, and its inhabitants domesticated local varieties of the same species at approximately the same time as food production developed in the other two areas. At the same time the use-pattern of animal domesticates was significantly different, indicating that the social and economic contingencies surrounding the development and propagation of food production were likewise different. It follows, therefore, that subsequent patterns of cultural development need not mirror those found elsewhere. Finally, Mehrgarh demonstrates that food production cannot be attributed to a single area, "people", *or linguistic group* as recently proposed by Renfrew (1987).

Harappan developments

The application of a cyclic developmental model to Harappan culture generated a series of attempts to define an "early" Harappan stage. One of the most serious efforts was made by Mughal (1970, 1973), based on a re-analysis of material from early, non-"mature" Harappan, occupations at Kot Diji (Khan 1965); he isolated several artefact categories which, he thought, foreshadowed later, "mature" Harappan traits at the site. Given available radiocarbon dates, Kot Dijian materials were assigned to the first half of the 3rd millennium B.C., thus predating the "mature" Harappan; therefore, Mughal proposed that they represented an "early" Harappan stage. Jarrige (1991; Jarrige and Meadow 1992) developed a similar interpretation by combining the Mehrgarh and Nausharo data into a long developmental sequence culminating in the emergence of the "mature" Harappan. However, recent radiocarbon dates (Shaffer and Lichtenstein 1989; Shaffer 1992a) indicate that chronological relationships between these data sets and the "mature" Harappan are imprecise. Kot Dijian occupations at some sites, such as Rehman Dheri (Durrani 1988; Durrani, Ali and Erdosy 1991), not only predate the "mature" Harappan, but are also contemporary with it, and with the "late" Harappan (Allchin 1984; Fairservis 1975: 221; Possehl 1984; Shaffer 1992b, 1993; Shaffer and Lichtenstein 1989). Likewise, chronological data, albeit limited, for late Mehrgarh, Periods VI-VII, and early Nausharo occupations indicate that they, too, were contemporary with at least the early "mature" Harappan. The archaeological record thus demonstrates that cultural relationships linked the "mature" Harappan with other social groups in the Indus Valley, but these relationships did not reflect a simple cyclic or progressive cultural development paradigm.

In a different interpretation Possehl (1990), as well as Shaffer and Lichtenstein (1989) independently concluded that the "mature" Harappan phenomena quickly developed, between ca. 2600-2500 B.C., and spread, by ca. 2400 B.C., throughout the Greater Indus Valley. If this hypothesis proves correct, the

question of Harappan origins cannot be addressed within a framework of cyclic or gradual and progressive development. More importantly, it will become necessary to develop an interpretative analysis that can account for dramatic and rapid cultural change, as well as the rapid spread of a distinct social identity, within a broader context of continuity.

Discovered in the 1920s, Harappan culture was immediately compared in its complexity to Mesopotamia and Egypt and designated the Indus Valley *Civilisation*. Given its wide geographic distribution, urban centers, sophisticated craft technologies, system of weights and distinctive script, the designation seemed appropriate. Therefore, it followed that "mature" Harappan culture had a social-political organisation comparable to an ancient state as defined for other civilisations. This view is reflected in Piggott's still influential description of forty years ago:

> Within the area already described, the uniform products of the Harappan civilisation can be traced with monotonous regularity of a highly-organised community under some strong system of centralised government, controlling production and distribution and no doubt levying a system of tolls and customs throughout the territory under its rule. As we shall see, there is no evidence to imply that the cities of Harappa and Mohenjo-daro were not contemporary: laid out to a common ground-plan, each with its defense citadel towering above the rest of the town, they seem to have been twin capitals, a northern and a southern, of one united kingdom (Piggott 1950: 136).

This equation of a civilisation with a state level organisation reflects a continuing archaeological assumption that a combination of urbanism, metallurgy, and literacy can only occur within a state context. Subsequent research by some scholars, however, questions whether "mature" Harappan political structure reflects an ancient state. For example, the construction of public structures that began in Mehrgarh Period II also characterizes the "mature" Harappan. The dimensions of some Harappan public platforms and enclosure walls at urban centers are impressive, as is the planning devoted to some public buildings, structures with *undetermined cultural functions*. At the same time, there is an absence of monumentality, in the same sense that it occurs in Mesopotamia, Egypt or the Aegean, expressed as the residences and tombs of ruling elites, and as temples. Likewise, although "mature" Harappans engaged in sophisticated and extensive craft activities (Barthelemy 1991), they focused, except for large ceramic vessels, on small individual or portable items, not on monumental works. Furthermore, no tombs or unusually wealthy burials have been identified in the Harappan world that would suggest the presence of *comparable* ranked or stratified elites associated with other contemporary civilisations. The importance of monumental architecture in the ancient world as discussed by Trigger also applies to crafts and burials:

> In human societies, the control of energy constitutes the most fundamental and universally recognised measure of political power. The most basic way in which power can be symbolically reinfor-

ced is through the conspicuous consumption of energy. Monumental architecture, as a highly visible and enduring form of such consumption, plays an important role in shaping the political and economic behavior of human beings. This explains why, as systems based on inequality evolved, monumental architecture loomed so large in the archaeological record. It further explains why, as political relations of domination changed, the type of buildings by means of which that power was expressed also altered (Trigger 1990: 128).

Thus, important ancient state symbols are missing in the Harappan context.

The three largest "mature" Harappan urban centers, Moenjo-daro, Harappa and Ganweriwala[1] have comparable sizes,[2] configurations and associated objects, and are approximately equidistant from each other (Possehl 1990; Shaffer 1993). In other words, none emerges as *the capital* settlement of an ancient state. Ganweriwala is in Bahawalpur, an area extensively surveyed by Mughal (1980, 1990) for ancient settlements of all periods. He identified five major protohistoric phases - Hakra Ware, Kot Dijian/Early Harappan, Mature/Urban Harappan, Late Harappan, and Painted Gray Ware - which spanned the 3rd-1st millennia B.C.. Although Mughal defined a regional multitiered settlement hierarchy, critical analyses of his data (Possehl 1990; Shaffer 1993) failed to confirm a three or four tiered hierarchy usually associated with ancient states. However, one study (Shaffer 1993) proposed that settlements for each occupation phase segregated into two groups - large and all the rest - a pattern not associated with ancient states but one that does argue for cultural continuity.

The "mature" Harappans were literate to a limited degree (Fairservis 1986, 1992). Surviving examples of their undeciphered script are restricted primarily to inscribed stamp seals and occasional graffiti on other objects. Although perishable materials may have been used for writing, the available Harappan data reflect a very limited surviving range of literate expression for an ancient state level organisation, other examples of which required considerable diachronic and synchronic record keeping and a supporting bureaucracy (Haas 1982). This limited use of writing and a lack of other evidence for a bureaucracy suggests, like the absence of monumentality, that state level organisation was absent. At the same time, most steatite seals were finely crafted items suggesting that they were important items not available to everyone, and the information conveyed on them most likely related to some type of social identity. These seals are among the most distinctive "mature" Harappan artefacts and are found in all Harappan regions suggesting the importance of being able to socially identify oneself within and outside of the Harappan social context.

Possehl (1990: 273-4) notes that the persisting belief of "monolithic" homogeneity in "mature" Harappan culture is greatly distorted and regional varia-

[1] Unlike the first two, Ganweriwala, found by Mughal (1980) during his surveys of Cholistan, was never excavated.

[2] Between 80-85 ha., although Moenjo-daro may be slightly larger - see Jansen 1993.

tions exist. However, he also emphasizes that between material and nonmaterial aspects of "mature" Harappan culture a sense of "oneness" exists, and striking similarities are found at sites, exemplified by the stamp seals. This "oneness" is very significant since "mature" Harappan sites are distributed over an area of 800,000 km^2, a region larger than any contemporary state or non-state culture. Equally significantly, this "oneness" links urban centers, small villages, and pastoral encampments whether in the Indus Valley or, like Shortugai on the Oxus river (Frankfort 1989), at far distances. A significant aspect of this "mature" Harappan "oneness" is its painted pottery, although with regional variations (Possehl and Raval 1989), which survives as a distinctive style into the 2nd millennium B.C.. Johnson (1987) and Nissen (1988) observed that as state level organisation emerges, painted decoration on pottery declines as the state absorbs local and regional symbolic systems, a situation not reflected in the Indus Valley. Again, the issue is whether this factor correlates with those already discussed, to suggest an absence of state level organisation. However, equally important is an assessment of how this "mature" Harappan "oneness" was maintained for several centuries in the absence of state organisation.

These considerations led Fairservis (1986, 1992) to argue that the "mature" Harappan did not have state level organisation. According to him, social groups were structured by kinship groupings each with a leader, or chief, who in turn was subject to a paramount chief(s) residing in larger settlements. I have argued elsewhere (Shaffer 1982) that "mature" Harappan concepts of wealth and inheritance were different from those in contemporary ancient complex societies, and that while Harappans had a structured leadership, its organisation need not parallel precisely other complexly organised societies. More recently, I proposed that the "mature" Harappan represented an integrating interaction system based on potentially multiple avenues of social and economic communication (Shaffer 1992a). More significantly, however, since the "mature" Harappan lacked many characteristics of ancient states, it is important to consider alternative explanations for understanding Harappan culture in terms of a political frame of reference. Unfortunately, there is an "academic status" associated with studying ancient states. Therefore, it is likely that either the "state" will be redefined to fit the "mature" Harappan pattern, or that "mature "Harappan culture will be moulded to the contours of existing definitions, at the expense of exploring alternative explanations.

Most "mature" Harappan culture distribution maps plot only individual site locations or the composite distribution area (for example, Wheeler 1968: 4; Joshi, Bala and Ram 1984; Mughal 1990: 46). This cartographic isolation, combined with the large geographic area covered by "mature" Harappan sites, has contributed to the perception of Harappan culture as an isolated "monolithic empire," dominating the Greater Indus Valley, a perception that distorts the archaeological record. Fairservis (1975: 221), one of the first scholars to recog-

nize that "mature" Harappans were not alone in the Indus Valley, notes: "Thus, about 2300 B.C., the early Kulli-Nal, the Amri, the Kot Diji, and the Harappan 'cultures', all of which were generally similar, were all well established ..." Current radiocarbon dates (Shaffer 1992a) suggest that Amri and Nal sites date earlier than the "mature" Harappan; this does not, however, exclude the possibility that some representative groups persist into the "mature" Harappan period. Similarly it is known that some Kulli (Possehl 1986) and Kot Dijian sites (Allchin 1984; Possehl 1984; Shaffer 1992a, 1993; Shaffer and Lichtenstein 1989) were contemporary with the "mature" Harappan.

Although "mature" Harappans were the Greater Indus Valley's dominant social group, they were not omnipotent and interacted to varying degrees with culturally similar, as well as different, social groups. Most of Baluchistan (Shaffer 1986) was occupied by contemporary agricultural and pastoral social groups like the Kulli or Damb Sadaat, and Harappan settlements are found along the fringes of that region. On the Indus plain were Kot Dijian, Mehrgarh Period VI-VII-(Damb Sadaat-)related and, *perhaps*, Amrian social groups. To the east, in Rajasthan and Gujurat, "mature" Harappans interacted with hunters and gatherers of the Langhnaj group; with cattle pastoralists of the Bagor group; with agriculturalists engaged in significant metallurgical activities of the Ganeswhar and Banas groups; *perhaps* with Vindhya rice horticulturists in the Gangetic plain; and, shortly *after* 2000 B.C., with Deccan agro-pastoralists of the Southern Neolithic groups.[3] Thus, the "mature" Harappans were, or had the potential to be, interacting with a variety of culturally similar and different social groups composing the northern South Asian cultural mosaic (Shaffer and Lichtenstein 1989) of the third and second millennia B.C.. Their cartographic isolation by scholars, combined with the use of paradigms of cyclic and progressive/gradual change, completely fails to depict the full, dynamic, social and geographic system of which they were but one part. The existence of this cultural mosaic reflects the importance of group identity, that fostered a need for symbols depicting social identity, such as stamp seals and painted pottery. Furthermore, cultural processes responsible for this cultural mosaic's development and persistence need to consider alternative explanatory concepts such as the *cultural tradition* and *palaeoethnicity*.

The Second Millennium B.C.

Perhaps as early as 2000 B.C. in some areas, and certainly after 1800 B.C., the "mature" Harappan culture underwent a major localisation process. Consequent-

[3] For a discussion and bibliography of these sites and social groups see Shaffer 1992a; Possehl and Rissman 1992.

ly, three distinct regional groups, categorised as "late" Harappan, emerged in the archaeological record - the *Punjab* in the northern Indus plain, the *Jhukar* in Sindh, and the *Rangpur* in Saurashtra (Shaffer 1992a, 1993; Shaffer and Lichtenstein 1989). Although they derive from the "mature" Harappan, previous characteristics of "oneness" are, essentially, absent. Among those important traits not documented are stamp seals, evidence for writing, a system of weights and urban centers (but see Shaffer 1986, 1993 for a contrary position on urban centers). During this period, cremations and fractional and urn burials, in addition to extended inhumations, were used by these groups, and there was a population shift to the east and southeast (discussed below). Except for the Kot Dijian, Banas, Hakra and hunting-gathering groups that persist into the 2nd millennium B.C., which may have also participated in the population shift, it is unclear what happened to the cultural mosaic. Neither is it apparent to what extent, if any, other groups were involved in the "mature" Harappan localisation process.

During the mid-second millennium B.C. many, but not all, Indus Valley settlements, including urban centers, were abandoned. The regional impact of this abandonment varied - for example, in Bahawalpur, it was dramatic compared to Sindh - but all Indus Valley and Baluchistan regions were affected. Mughal's (1980, 1990) Bahawalpur survey identified 174 "mature" Harappan sites having a total combined area of 443 ha.[4] During the "late", here "Punjab", Harappan phase, 50 sites with a total combined area of 216 ha. were found, the numbers declining by 71% and 51%, respectively, from the preceding period. During the succeeding, Painted Gray Ware phase, only 14 sites were identified with a total combined area of 36 ha, a further drop of 72% and 83%, respectively, from the Punjab Harappan; only five Early Historic period sites were located. Bahawalpur is the best documented area, but it may not be representative of the entire Indus Valley since the Ghaggar-Hakra River, its main water source, was captured during this period by the Yamuna-Gaṅgā drainage and became a dry channel. However, localised Harappan occupational sites in many Indus Valley areas are the last habitation sites until the Islamic or Medieval periods.

Fully comparable data are not available from Gujurat or the eastern Punjab (here including the modern Indian state of Haryana and northern Rajasthan), but a site gazetteer (Joshi, Bala and Ram 1984 - lacking site areas) provides insights as to what happened. In the eastern Punjab, "mature" Harappan sites number 107, whereas later "Punjab" Harappan sites number 429, a 300% increase. Gujurat had 110 "mature" Harappan sites, followed by 130 "Rangpur" Harappan sites which represents an 18% increase. Another important characteristic of these regions (Shaffer 1993) is the fluid status of settlements; each

[4] Possehl (1990) also discusses this data but he includes pastoral camps and purely industrial sites, hence the discrepancy in figures.

period sees the abandonement, as well as establishment, of a high number of sites. In the eastern Punjab 79.9% and in Gujurat 96% of sites changed settlement status between the "mature" and localised Harappan developments. It is likely that Kot Dijian groups were also shifting locations but poor chronological control makes it difficult to discuss them. Concomitantly, 50% of Bahawalpur sites changed settlement status between the "mature" and localised Harappan developments during this region's abandonment. For comparison, a rate of 50% in Mesopotamia is considered to reflect considerable population movement (Adams 1981). It is evident that a major geographic population shift accompanied this 2nd millennium B.C. localisation process. ***This shift by Harappan and, perhaps, other Indus Valley cultural mosaic groups, is the only archaeologically documented west-to-east movement of human populations in South Asia before the first half of the first millennium B.C.***.

The reasons for this population movement remain unknown. Certainly the changing Ghaggar-Hakra River drainage pattern played a significant role for regions directly affected by it. Limited palaeoenvironmental studies in Rajasthan and elsewhere suggest an overall increase in aridity as another factor (Bhatia and Singh 1988; Bryson and Swain 1981; Singh 1971, 1974; also Shaffer and Lichtenstein 1989). Fairservis (1986, 1992; also Shaffer 1993) proposed that an inherent contradiction between the emphasis on cattle pastoralism and agriculture within an arid ecology might explain both the localisation effect and population movements. Certainly this complex situation has multiple explanations. However, an understanding of what happened is unlikely to be achieved without major paradigm changes in South Asian archaeology.

The regions and their hinterlands experiencing this influx of Indus Valley groups were essentially underpopulated, though they had been occupied by cultural groups for millennia (for a discussion and bibliography, see Possehl and Rissman 1992). Numerous microlithic sites throughout these eastern regions represent the continued presence of pastoral and/or hunting-gathering groups. In the central Gaṅgā Valley were Vindhya Neolithic settlements, dating to ca. 4000-1600 B.C., that combined hunting-gathering, a limited use of domestic animals, mainly cattle, and agriculture which included rice. Black-and-Red Ware-using agricultural groups were located in all sectors of the Gaṅgā Valley as well as in Gujurat and Rajasthan. Indeed, Black-and-Red Ware-using groups are found throughout India and span a period from the late third millennium B.C. through the Early Historic period (Singh 1982). The earliest dated examples of this pottery are in northwestern India (Gujarat and Rajasthan), and it is quite possible that associated social groups were shifting into the same regions localised Harappans and others were moving into. Unfortunately this pottery type spans a long period and is found in varied contexts (such as Megalithic tombs) making it difficult, based on available data, to discuss this issue with precision. Black-and-

Red Ware using groups are also important, since many scholars (e.g., Tripathi 1975: 55) believe that this pottery influenced the development of Painted Gray Ware, an early Iron Age pottery and predecessor to the Early Historic Northern Black Polished Ware, associated with the earliest unquestioned South Asian states. Another critical aspect of a Black-and-Red Ware-Painted Gray Ware link is that stratigraphic and cultural connections show Painted Gray Ware and localised Harappan occupations to be contemporary in the eastern Punjab at the sites of Bhagwanpura, Dadheri, Nagar and Katpalon (Shaffer 1981, 1986, 1993). These emerging connections and relationships in the northern South Asian archaeological record indicate no significant cultural discontinuities.

This review of archaeological data demonstrates that a continued division of South Asian cultural history into discrete archaeological "cultures" or "stages" such as non-Harappan, "early" Harappan, "mature" Harappan, Kot Dijian, "late" Harappan, Painted Gray Ware and others masks the existence of a long surviving cultural tradition, and distorts the processes responsible for the cultural changes this variety of designations represents. Archaeological data indicate the existence of a long-term cultural tradition responsive to changing cultural and ecological contexts, with an ability to adjust to rapid, as well as long-term, changes.

The cultural tradition and palaeoethnicity concepts

The *cultural tradition* concept as used in South Asian cultural anthropology represents an application of Redfield's (1953) "great" and "little" traditions to "Indian Civilisation" (e.g., Marriott 1955; Singer 1972). Archaeological use of the concept remains limited and more recent (Fairservis 1975: ixx-xxv; Flam 1981; Possehl 1980: 13-22; Kenoyer 1991; Shaffer 1992a, 1993; Shaffer and Lichtenstein 1989; but see Malik 1968). This restricted archaeological use of the cultural tradition concept demonstrates the pervasive influence of Piggott's and Wheeler's interpretations. For example, Fairservis initially discusses the importance of cultural continuity:

> The term "tradition" refers to a time-culture relationship which describes the chronological placement of a culture trait, structure, or system and remarks on their continuity. It enables the present culture bearer to consider history as the source of a given cultural behavior used in the present. In primary civilisation tradition preserves an older way of doing things and shapes the new to the essential style which characterizes the civilisation as a whole (1975: xxii).

However, his focus then (1975: xxii-xxv) shifts to the "primary civilisation", a vague construct that could survive and absorb foreign intrusions (the Aryans), which leaves the interpretations of Piggott and Wheeler essentially unchallenged.

Beginning in 1984 (Shaffer 1992a; Shaffer and Lichtenstein 1989) I defined an "Indus Valley cultural tradition" to help enhance understanding of the archaeological record. In 1988 (Shaffer 1993), I synchronically and diachronically expanded this cultural tradition to include the Gaṅgā Valley and the Early Historic periods, designating it the "Indo-Gangetic cultural tradition." The original concept was similar to Willey and Phillips' (1958: 37) "archaeological tradition":

A *cultural* tradition refers to persistent configurations of basic technologies and cultural systems within the context of temporal and geographical continuity. This concept facilitates a stylistic grouping of diverse archaeological assemblages into a single analytical unit, while limiting the need for establishing the precise nature of cultural and chronological relationships that link assemblages but imply that such relationships exist (Shaffer 1992a: 442 - italics added here).

Traditions may be subdivided into *eras* combining more distinctive archaeological units, or *phases*, into groups based on a few, but very general cultural characteristics. A phase, the smallest, most distinctive and most materially diverse analytical unit in a tradition, compares to the "phase" defined by Willey and Phillips (1958: 22), having synchronically distinctive cultural characteristics distinguishing it from other phases, and more precise chronological boundaries than eras or traditions. Given the limitations of the available data, phases are primarily distinguished by diagnostic artefact styles located at one or more sites.

A cultural tradition synchronically and diachronically integrates cultural and ecological variables, while accommodating continuity and change, through proposing that key cultural traits and relationships exist, uniting seemingly diverse social groups, here designated phases, into a single analytical framework. The 1984 and 1988 definitions emphasised ecological variables, subsistence systems, craft items and styles, settlement characteristics and patterns, resource and commodity distributions and other material items from the archaeological record. Although aspects of its social-cultural, political and economic organisations were discussed, they were not emphasised. Recent developments in South Asian archaeology require a revision of the definition of the Indo-Gangetic cultural tradition to accommodate new data and interpretations. Thus, the first sentence in the above quote should be replaced with "A cultural tradition refers to persistent configurations of basic technologies and cultural systems *as well as structure* within the context of temporal and geographic continuity."

The term "structure" used in this redefinition of a cultural tradition is similar to that of *habitus* in the "practice theory" developed by Bourdieu (1978, 1984, 1990; see also Ortner 1984, 1989):

The habitus comprises a set of generative schemes that produce practices and representations that are regular without reference to overt rules and that are goal directed without requiring conscious selection of goals or mastery of methods of achieving them... (Bentley 1987: 36).

In other words, human behavior is habitual as well as rational and interest seeking, and governed, but not dictated, in part by a series of unchallenged but challengeable assumptions. However, structure does not "...just sit there, constraining actors by its formal characteristics, but recurrently poses problems to the actors, to which they must respond" (Ortner 1989: 196). At the same time, structure also provides a range of problem solving options for actors that will "...generate both personal satisfaction and social respect" (*Ibid*). A successful pattern(s) of problem resolution(s) may generate a new social identity, in an archaeological context a *palaeoethnic* group, within a cultural tradition. The structure itself *may* or *may not* be modified to varying degrees by this process and the time required will vary. Most problems and options do not modify structure. However, when they involve asymmetrical relationships of any sort, the potential for modification increases and change within a context of cultural continuity, the cultural tradition, may occur. The addition of "structure" and practice theory principles to cultural tradition provides a socially dynamic framework for data analysis - one providing insights for understanding gradual and rapid cultural change, and accounting for cultural variation within a context of cultural continuity.

A cultural tradition is synchronically and diachronically composed of a series of *palaeoethnic groups* comparable to phases, one of the analytical units defined above. A palaeoethnic group is a stylistically distinct archaeological assemblage (Shennan 1989), sharing key traits and relationships with other past, contemporary and future groups so defined. Palaeoethnic groups, however, maintained distinct social identities versus similar groups, were associated with a territory, had chronological boundaries, and competed with other palaeoethnic groups for natural and social resources. It should be emphasised that palaeoethnic groups defined by archaeologists are not to be equated with historically known or modern ethnic groups. Such comparisons would duplicate early twentieth century (pre-1950), European studies that generated unsupportable and undesirable results (see Trigger 1989: 148-206 for discussion). Many historic and modern ethnic group studies focus extensively on linguistic and cognitive data not usually available to archaeology, and certainly not available in South Asia. Palaeoethnic groups are fundamentally different from historic and modern ethnic groups because they emerged and existed in a pre-state or ancient state environment (Shaffer and Lichtenstein 1989: 124). Although modern studies of ethnicity (e.g., Gellner 1983; van den Berghe 1987) are important for appreciating palaeoethnic group complexities, these modern ethnic groups exist within a state context, have contacts with states, or have developed as a reaction to the state (Anderson 1991; Williams 1989), a situation different from ancient South Asia. Many scholars place significant emphasis on language as the cohesive force holding ethnic communities together. This focus on language actually reflects the situation in the Western world, which arose in the eighteenth century

with the initial formation of modern linguistic, nation states, and intensified with the increasing availability and impact of printed and other means of communication from the mid-nineteenth century to the present (Anderson 1991).

Examples could be multiplied to show that language, long held to be the main, if not the sole, differentiating mark of ethnicity, is often irrelevant or divisive for the sense of ethnic community. ... Yet scholars persist in regarding language as the distinguishing mark of ethnicity, a standpoint that leads to gross simplification and misunderstanding of both ancient and modern periods of ethnic community. ... Besides language is one of most malleable and dependent of cultural categories ... particular linguistic formations are largely the product of the interplay of religion and political organisation in a given area. Hence any delineation of the "cultural" aspect of ethnie must include all manifestations of culture and look beneath the immediate and salient sign of communication which a shared language expresses, to the underlying lifestyles and values of a community (Smith 1988: 27).

Furthermore, modern non-Western ethnic group studies demonstrate that linguistic affiliation need not be the eminent factor in determining ethnic affiliations (Barth 1956, 1972, 1969a and 1969b, 1983, 1984; Maybury-Lewis 1984). Ecology, economics, politics and religion are equally important avenues for ethnic identity.

The Indo-Gangetic Cultural Tradition

Several features of the Indo-Gangetic cultural tradition are archaeologically tracable, such as craft technologies, subsistence patterns, architecture, settlement patterns, exchange systems, intercultural relationships, and ecological factors, all documented and discussed in earlier definitions (Shaffer 1992a, 1993). Recent research provides new details but does not substantially alter those aspects of the definition; therefore, they are not repeated here. Rather the focus here is on delineating elements of this Indo-Gangetic cultural tradition's *structure*.

A key to understanding the Indo-Gangetic cultural tradition's structure is its economic and cultural focus on cattle. Cattle, as noted earlier, require more pasturage and have a shorter hydo-range than sheep or goats, but also generate more meat and secondary products and may be used for traction. Nevertheless, sheep and goats adapt better to aridity, and maintain faster herd growth than cattle - goats 2.3 times, sheep .85 times more (Russell 1988: 74). However, zebu cattle are better adapted to arid environment than most cattle breeds (Russell 1988: *passim*). In terms of total caloric produc tion, including dairy products, cattle exceed goats by a factor of 3.7 and sheep by 2.5 (Russell 1988: 75); but they are more labor intensive than either by a factor of about 28% (Russell 1988: 99). The above figures do not reflect the possibility that by mid-3rd millennium B.C. sheep were also kept for their wool (Meadow 1991; Jarrige and Meadow 1992); however, that would not significantly alter the discussion here. These factors suggest, given the increasingly arid savanna ecology of the Grea-

ter Indus Valley after ca. 4000 B.C., that this continued preference for cattle was a deliberate cultural decision by the social groups in the area, and that cattle were objects of important cultural wealth (Fairservis 1986, 1992; Shaffer 1993; Shaffer and Lichtenstein 1989).

Animals were only part of this cultural tradition's subsistence strategy, since extensive crops, especially wheat and barley, were raised (Weber 1991). Zeder (1991: 29) discussed the possibility of inherent contradictions between practicing extensive agriculture and maintaining large cattle herds in ancient Mesopotamia thus: "For all these reasons cattle are more likely to be kept in well-watered alluvial areas, creating greater potential for conflict between agricultural and herding interests and making them an easier target for central control". Given the ecology of the Greater Indus Valley a similar situation was noted by Fairservis (1986, 1992; also Shaffer 1993; Shaffer and Lichtenstein 1989), namely, that often the best agricultural lands were also the best pasturage available for cattle given their limited hydo-range. In addition, there was the problem of keeping large cattle herds away from cultivated fields until harvest, and seasonally providing fodder to maintain them, a critical situation if adequate pasturage was unavailable. This conflict of interests was partially resolved by establishing additional settlements in new, sometimes marginal, areas that temporarily allowed herd maintenance and continued agricultural production. Concomitant with this process was the development of at least seasonally specialised cattle pastoralists. It was during the Harappan period that, according to Fairservis, this process reached its maximum extent in the Greater Indus Valley, making it sensitive to ecological and social stresses that ultimately contributed to its "decline and fall."

It is unlikely that any single issue, such as conflicting land use interests between pasturage and agriculture, was totally responsible for cultural changes in the 2nd millennium B.C.. However, it represents an example of the range of problems a cultural tradition's structure poses for members, bringing about change. One resolution to this problem was reflected by Oriyo Timbo (Rissman and Chitalwala 1990), a Rangpur Harappan site, representing a seasonal, specialised cattle pastoralist settlement. In other words, the herds were maintained by moving them away, at least seasonally, from the agricultural fields, thereby preserving the subsistence strategy and the cultural focus on cattle as wealth. At the same time this solution created a new, subsistence based, occupational specialisation - the seasonal or year-long cattle pastoralist - within or separate from the herd ownership unit; and, since such specialisations cannot be isolated developments, other comparable subsistence based occupational specialisations had to exist. Since cattle represented important cultural wealth, it is likely that such occupational specialists were related to the herd-owning social unit, making occupation and kinship increasingly interrelated. Further, given scheduling complexities and emerging resource competition, it is likely that a degree of inter-

and intra-group social ranking developed to facilitate decision making and dispute resolution.

Kenoyer (1989) advocates a similar reconstruction for craft organisation in this tradition. He argues that craft specialists had a social-economic organisation based on ranked, occupationally specialised kin units. This type of organisation, according to Kenoyer, would account for artefact similarities ("oneness") and variation, as well as the long-distance trade among all palaeoethnic groups of this tradition, eliminating any need for a centralised state authority. Finally, one critically important response to these land use problems was the establishment of new settlements in areas increasingly distant in time and space from parent settlements, making communication more difficult. Consequently, if competition increased over access to natural and social resources, introducing new, or intensifying existing, asymmetrical relationships, or if new natural and social stresses developed, the formation of new palaeoethnic groups took place in order to protect and perpetuate the immediate social group's vested interests (see also Brumfiel 1992: 557-558), and so generated the Indo-Gangetic cultural mosaic.

Another aspect of this regime is the important status of cattle as cultural wealth (Fairservis 1986, 1992; Shaffer 1993; Shaffer and Lichtenstein 1989). Available faunal data substantiate the economic importance of cattle and suggest that large herds were kept into the second millennium B.C., a situation best documented among Harappan palaeoethnic groups (see above and Meadow 1987). Although generalisation is difficult, the economic importance of cattle was not paralleled by their use as a motif on craft objects such as painted pottery; indeed, cattle motifs were rare on "mature" Harappan pottery. On the other hand, terracotta cattle figurines are ubiquitous at most sites, especially Harappan sites, attributed to this cultural tradition. Traditionally these figurines, and those of other animals and "bullock" carts, are designated "toys" since most are only summarily crafted. A few cattle figurines were, however, finely sculptured and may not be "toys" in the same sense as the others. Moreover, cattle figurines, along with cart frames, occur by the hundreds even at small Harappan sites such as Allahdino (Fairservis: personal communication). Fairservis (1986, 1992) proposed that terracotta cattle figurines and cart frames, along with other objects, constituted a system of counters for tracking commodities, such as herd size and composition; however, this is not widely accepted, in part, because no large caches of figurines have been found. Still cattle figurines were very "popular", with many finely crafted examples, and given the economic importance of cattle these may have had other functions (in household rituals?) than that of "toys."

Cattle motifs frequently occur, however, on one culturally important object - Harappan stamp seals. Cattle motifs are the second most frequent (5%), and if "unicorn" motifs are included (66%), they are the most frequent (Fairservis 1986, 1992, and personal communication). A debate persists as to whether the "unicorn" motifs are actually bull profiles or true "unicorns", since a few

terracotta "unicorn" figurines have been found (see: Fairservis 1983: 60, 1986: 46; Jarrige and Meadow 1992: 168-169; Grigson 1984: 148-153; Franke-Vogt 1990). Rather than "remain on the horn(s) of this dilemma", it is argued here that even if a unicorn, or mythical animal, the single horn is on the body of a bull-like animal and not that of a dog, sheep, goat, pig or onager. If a mythical animal, then, as in Medieval Europe where unicorn horse-like animal motifs occur, the single horn was on an animal of significant economic and cultural value. Since stamp seals were not available to everyone in a social group, and because their inscriptions most likely reflect titles and/or personal names, it is reasonable to conclude that cattle were invested with social importance and cultural identity. Moreover, if seals were also a marriage talisman, as Fairservis argues, they suggest that cattle constituted a wealth category associated with forging important social relationships such as marriage. Furthermore, if cattle, as wealth, provided access to reproductive sources, they were probably also avenues to establishing, maintaining or breaking other important social, economic, political and religious relationships.

Cattle, like other wealth objects, may be accumulated and inherited; however, like other animal wealth, they must ultimately be spent before becoming a liability or dying. Land and craft items, such as metals, as wealth objects have a longevity and accumulability absent in animal wealth. Given these limitations, the focus on cattle as wealth may have fostered a perception of all wealth objects as being ultimately temporary, items that must be spent during life and redistributed after death, like the herd (e.g., Goldschmidt 1969). It is possible that social status symbols were not elaborate tombs or monumental works as in other ancient societies, but, rather the extent and solidarity of secular and sacred relationships constructed by individuals and larger social units, through astutely spending their live wealth before it died. Social status itself might have been perceived as temporary, waxing and waning with fortunes of the herd, and it was the relationships rather than the physical symbols of such status that were perpetual. Cattle as an important wealth aspect of the Indo-Gangetic cultural tradition's structure constantly posed the problems of how to spend, or divide, live wealth to the maximum of individual and larger social unit advantage, generating a social, political, economic and religious organisation unlike others in the ancient world.

At the close of the second millennium B.C. the cultural and geographical focus of Indo-Gangetic cultural tradition was shifting from the Indus to the Gaṅgā River drainage system, a shift that would have dramatic consequences for this tradition. The Gaṅgā area may have been more forested than the Indus, thus limiting its herding potential, but palaeoenvironmental information is limited. A more important economic factor was the integration of millet, sorghum and rice with wheat and barley that, combined with the greater Gaṅgā Valley water resources, made multi-cropping possible. The economic potential of this strate-

gy eventually resulted in the ascendancy of agriculture over agro-pastoralism. Extensive and intensive agriculture made it difficult, or impossible, to maintain herds at the same level as in the Indus Valley. Concomitant with these developments was a decline in the range of craft items manufactured, and a shift towards establishing and maintaining smaller sised settlements, albeit a few large settlements are known (Shaffer 1993). Among those craft items to disappear were the inscribed steatite stamp seals with the bull and "unicorn"-bull motifs. Cattle motifs are infrequently found on the painted pottery of the various localised Harappan groups (e.g., Punjab Harappan), but they lack the lifelike details found on the stamp seals. Together, these factors suggest that some fundamental changes in Indo-Gangetic cultural tradition's structure were taking place by the end of the second millennium B.C..

It is proposed (also Shaffer 1993) here that during this period, and into the first millennium B.C., cattle became less of a general vehicle for gaining access to all types of natural and social resources, and their status as objects of important cultural wealth was deflated. The ascendancy of an agricultural focus resulted in land, rather than cattle, becoming the primary form of important cultural wealth, allowing access to natural and social resources. Such a fundamental change in structure created new sets of asymmetrical relationships and intensified existing ones. Acceptance of land as important cultural wealth may have been accompanied by fundamental changes in other categories of cultural behaviour and perceptions. Land is important cultural wealth - one that can be accumulated, but, if divided when inherited, can reach diminishing return of investment for labor expended. Determination of social status may have shifted emphasis from social and sacred relationships to surplus production and control over resources with longevity. Cattle, however, retained their economic value as a source of capital which, unlike land, reproduces itself, and they remained an important focus of cultural continuity for this tradition. Although the use of cattle as important cultural wealth declined in the first millennium B.C., their religious status remained high, or intensified, providing an important cultural link between the protohistoric and Early Historic Periods. This shift in focus on important cultural wealth would suggest that earlier social identities declined in significance during this period, a condition some scholars (e.g., Crone 1986) think is a key prerequisite to initiating state formation processes, which were in place by the middle of the first millennium B.C..

Conclusions

The cultural tradition concept provides a framework for understanding synchronic and diachronic cultural continuities, linking what otherwise appear to be diverse archaeological assemblages. The palaeoethnic group concept provides a

framework for understanding the emergence of this diversity without invoking intrusion, cyclic growth or gradual progressive change models of development. Eras highlight important general cultural developments that may, but not necessarily, have chronological boundaries. The definition of any specific cultural tradition, and especially its structure, will vary with region, academic interests and the increasing data base with which all archaeologists must contend. These concepts, combined with the principles of action theory, provide archaeology with the opportunity to investigate more "agent-centered perspectives" of cultural development (Brumfiel 1992: 358-360). The details and focus of their application will always be subject to debate and reinterpretation, but it is proposed here that they facilitate a recognition that:

> ... human actors, and not reified systems, are the agents of culture change. Human actors devise complex strategies to solve their problems and meet their goals, and these strategies are neither random nor shaped solely by differential survival either at the population level as ecosystem would have, or at the level of the individual as more recent evolutionary cultural theorist claim. This is not to say that humans always "get it right" or that their actions do not have unforeseen consequences. It is simply to argue that human goals are relevant to cultural outcome (Brumfiel 1992: 559).

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P. Oktor Skjærvø

6. The Avesta as source for the early history of the Iranians

Introduction

Sources for the Early History of the Iranians

Evidence either for the history of the Iranian tribes or their languages from the period following the separation of the Indian and Iranian tribes down to the early 1st millennium B.C. is sadly lacking. There are no written sources, and archaeologists are still working to fill out the picture.

In most reconstructions of the arrival of the Indo-Iranians in the areas they inhabited in historical times, it is assumed that they came originally from the north,[1] but there is considerable disagreement among scholars about the exact route the Iranians took into the Iranian Plateau. Both a western route (west of the Caspian Sea, over the Caucasus) and an eastern route (east of the Caspian Sea) have been considered (cf. Schmitt 1987; Mallory 1989: 48-56). The results of the investigation of the Bactria-Margiana Archaeological Complex (BMAC), which has been dated to ca. 2100-1750 B.C. (Sarianidi 1979, 1990a, 1990b), would seem to favor the eastern route theory, though it is quite possible that there were at least two waves of immigrants, one by which one or more groups of Iranians had found their way into western Iran over, to the east, or to west of the Caucasus and another, or others, which came from eastern Central Asia (cf. Hiebert and Lamberg-Karlovsky 1992; Lamberg-Karlovsky 1987). Note, however, that the questions of the spread of Zoroastrianism and of the importation of the Avesta into Fārs, discussed below, are not necessarily linked to the question of the earliest Iranian immigration routes.

[1] An exception is Colin Renfrew's proposal that they came from Anatolia (Renfrew 1987). His theory would solve the problem of the presence of Indian elements in the Mitanni texts but is, unfortunately, rejected by the majority of both archaeologists and linguists - see, for example, the preface to Mallory 1989.

Iranians on the Plateau

The earliest mention of Iranians in historical sources is, paradoxically, of those settled on the Iranian plateau, not those still in central Asia, their ancestral homeland. "Persians" are first mentioned in the 9th-century B.C. Assyrian annals: on one campaign, in 835 B.C., Shalmaneser (858-824 B.C.) is said to have received tributes from 27 kings of Paršuwaš; the Medes are mentioned under Tiglath-Pileser III (744-727 B.C.); at the battle of Halulê on the Tigris in 691 B.C., the Assyrian king Sennacherib (704-681 B.C.) faced an army of troops from Elam, Parsumaš, Anzan, and others; and in the Vassal Treaties of Esarhaddon (680-669 B.C.) and elsewhere numerous "kings" of the Medes are mentioned (see also, for example, Boyce 1975-82: 5-13).

We may mention here that the spellings *Paršuwaš* and *Parsumaš* probably render Iranian **Pǎrs(a/u)wa*, a name that is not attested as such in Old Iranian languages. It is not impossible that Old Persian *Pārsa* is descended from an earlier form **Pārswa*, but that cannot be proved. On the other hand, modern *paṣ̌tō* (the language of the Afghans) must be descended from Old Iranian **pārsawa*, which is very close to the Assyrian forms. Finally, Old Persian *Parθava* is also not unlike these forms. The meaning of **Pǎrs(a/u)wa* may have been "lateral, marginal," if connected with Avestan *parəsu-*, Old Indian *parśu-* "rib." Whatever the original meaning of the name, it seems to have been used widely by Iranian-speaking groups.

Iranians in Central Asia

Archaeology has revealed a great deal about settlements and cultures in Central Asia and has shown that changes in population density in southern Central Asia occurred several times throughout the 2nd millennium B.C.. In the first centuries of the 1st millennium B.C. we find city-like settlements containing strong citadels, which points to the formation of strong political units (Kohl 1984: esp. chapter 18; Masson 1959, 1986: 311). According to the historical and archaeological sources the Median empire (700-550 B.C.) encompassed, in addition to much of western Iran, at least parts of northeastern Iran. The Achaemenids (550-330 B.C.) greatly expanded their territories in northeastern Iran.

There are no literary sources for Iranians in Central Asia before the Old Persian inscriptions (Darius's Bisotun inscription, 521-519 B.C., ed. Schmitt) and Herodotus' *Histories* (ca. 470 B.C.). These show that by the mid-1st millennium B.C. tribes called Sakas by the Persians and Scythians by the Greeks[2] were spread throughout Central Asia, from the westernmost edges (north and northwest of the Black Sea) to its easternmost borders. Thus Darius, in his

[2] The *locus classicus* is Herodotus vii.64: "for the Persians call all the Scyths 'Sakas.'"

inscriptions, mentions the "Sakas beyond the sea" (probably north of the Black Sea), the "Sakā Haumavargā" (somewhere north of modern Afghanistan), and the "pointed-hat Sakas" (to the north-northeast of the "Haumavargā"?); the latter two are probably those who are also referred to as "beyond the Sogdians." In Herodotus' accounts the Scythians are first mentioned under Cyaxares (625-585 B.C.) when they drove the Cimmerians out of Europe and into Media (i.103-106). We next hear of them when Cyrus conducted his ill-fated campaign into Central Asia where he was overcome and killed by the Massagetai (i.201-216). The most detailed account of the Scythians is found in connection with Darius's Scythian campaign (iv.1-142). Much of this account has now been confirmed by the work of archaeologists (Sulimirski 1985; Francfort 1988). Specifically, the tomb of a royal member of the tribe of pointed-hat Sakas has been found at Issyk in Semirech'e south of Lake Balkhash in Kazakhstan (Akishev 1978; illustrations, e.g., in Rolle 1980: 48-50). Many of the tribal names given by Herodotus typically contain the suffix *-tai* (Massagetai, Paralatai, Sauromatai), which is the common plural ending in Middle Iranian Sogdian and modern Ossetic.

Language contact on the Plateau

For the earlier periods the archaeological evidence, although plentiful, is still not complete and only partially makes up for the lack of historical sources. One might expect the linguistic evidence to fill in the picture to a certain degree, as it does in India, but again the results are meager.

When the Iranians arrived on the Plateau, they encountered and at least partly displaced or absorbed local populations, among them Elamites, Cassites, and others, but the only local language about which we have abundant information is Elamite. It would seem likely that Elamite elements were incorporated in the Iranian languages spoken on the Plateau, especially that of the Persians, who took over administrative centres of the Elamites (Anshan and Susa). Such elements are, however, very few. Among recognisable foreign words in Old Persian are a number of Mesopotamian "culture words": *dipi-* "inscription" from Sumerian via Elamite *tuppi* and *maškā-* "inflated cow's hide" (used for ferrying) from Aramaic. Non-Iranian elements in Iranian languages therefore shed little light on the migrations and contacts of the early Iranians.

The Avesta

The only sources for the early (pre-Achaemenid) history of the eastern Iranian peoples are the Avesta, the Old Persian inscriptions, and Herodotus. Information in the inscriptions is limited to a listing of the provinces of the empire,

rebellions that took place there, and the building materials that were provided there for the palace at Susa. Herodotus also lists the provinces, together with the amount of tribute they paid (iii.92-93), and provides several more or less reliable anecdotes and other information about some of them. In view of the dearth of historical sources it is of paramount importance that one should evaluate the evidence of the *Avesta*, the holy book of the Zoroastrians, parts at least of which antedate the Old Persian inscriptions by several centuries.

The Avesta as source

It is notoriously difficult to use the Avesta as a source for the early history of the Iranians. Numerous problems of different orders are involved, of which the following two are the most general and at the same time the most important: 1). How to determine where or when the Avesta was composed? 2). How to use the sparse information on Iranian people(s) contained in it? The present section will focus on a discussion of these issues.

There are two main approaches to these questions: linguistic analysis and analysis of geographical and other references and comparison with known archaeological and historical facts and events. Of course, when we use archaeology and history to date the Avesta, we cannot turn around and use the Avesta to date the same archaeological and historical events, and vice versa. However, if the comparative linguistic analysis provides a chronological framework, then we are entitled to use this framework to confront the geographical and other concrete references in the texts with archaeology and history to modify and gain a more secure basis for the chronology. It is often difficult to separate the two aspects, and there is always a very real danger of circular argumentation. Nevertheless, we shall see below that in several instances results gained from linguistic analysis can be satisfactorily correlated with archaeological data.

In this presentation I cannot, for a variety of reasons, enter into any in-depth discussion of the problems involved, or provide views that differ significantly from those that are by now traditional. Lengthy discussions with exhaustive bibliographies are provided by Gnoli (1980, 1987, 1989), Boyce (1975: 189-191 contains a summary of opinions; Boyce 1992: 27-45 a detailed discussion) and Humbach (1984; and Humbach et al. 1991,1: Introduction).

The linguistic evidence

The Avestan texts

The Avesta contains two clearly distinguished groups of texts, commonly referred to as Old and Young (or Younger or Late) Avestan (see, e.g., J. Kellens

1987, 1989; Schmitt 1989). The Old Avestan texts consist, first, of the collection of *Gathas* - poetical (metrical) ritual texts which, according to the indigenous tradition, were composed by Zarathustra, and, second, of the *Yasna Haptanghaiti* - rhythmic prose (or archaic poetical) texts, for which no named author is claimed (Kellens and Pirart 1988; Humbach et al. 1991; Narten 1986). The Young Avestan texts consist of a (relatively) large quantity of miscellaneous texts, ranging from hymns dedicated to specific deities, through mythological, geographical, and religio-legal texts, to lengthy religious litanies. Some recent editions and translations are by Dhabhar (1963), Gershevitch (1967), Kreyenbroek (1985), Malandra (1983), Panaino (1990) and Pirart (1992).

Affiliation of the Avestan language

Texts have survived in only two ancient Iranian languages: Avestan and Old Persian. Of the Median language no texts have survived, but numerous words found their way into Old Persian. From later periods numerous Iranian languages and dialects are known, which allow us to classify the two old languages within the dialect geography of the Iranian-speaking area with some precision. Thus Old Persian belongs to the group of "southwestern" (Perside) Iranian languages, while Avestan belongs to the group of languages comprising the rest of Iran, except a small area in the farthest northeast, represented by Middle Iranian Khotanese and modern Wakhi. The language spoken by these peoples is distinguished from Avestan and Old Persian, as well as all other known Iranian languages in several important respect, one of which may be illustrated by the word for "horse": Skt *aśva*, Av., Median *aspa*, OP. *asa*, Khot. *aśśa*, Wa. *yaš*. Clearly the Khotanese and the Wakhis are descendants of Scythian tribes of eastern central Asia, maybe even of the Scythians with pointed caps.

A small number of additional linguistic features also point to eastern rather than western affiliation (see, e.g., Kellens 1989: 35). Some of these are of problematic interpretation, however, due to complications created by the transmission of the Avestan texts. At the same time, no non-Iranian words have so far been identified in Avestan (Kellens 1989: 55).

The early transmission of the Avestan texts

At least from the beginning of the Sasanian period (mid-3rd century A.D.), but probably earlier, the Avesta was being transmitted in southwestern Iran, modern Fārs.[3] As we have seen, this is the one area of Iran where it probably was not composed. In addition to the questions: Where and when was it composed? we

[3] The Pahlavi translation of an Avestan *nask* is quoted in the visonary inscription of the high-priest Kirdēr, ca. 270 AD, and a *nask* is referred to in a Manichean text describing the meeting of Mani with a Sasanian king (Skjærvø, 1983: 289-291; Skjaervø forthcoming).

must also ask: How and when did it arrive in Fārs and what influences was it exposed to during the migration and its sojourn there?

This question has great relevance for the evaluation of common features of Avestan and other Iranian languages. We know, for instance, that the ancient Sogdians knew Avestan texts,[4] and features common to Sogdian and Avestan may therefore have been introduced by Sogdian transmitters of the texts. On the other hand, it is impossible on linguistic grounds to specify more exactly the location of the Avestan-speaking tribes.

Problems of chronology

While it is agreed that a relatively long time span separated the composition of the Old and Young Avestan texts there has been, and still is, considerable disagreement among scholars about the absolute chronology of the texts. The most common estimates range between 1000-600 B.C. for the older Avesta and from about 800 B.C. to the 3rd century AD for the younger Avesta. The date of Zarathustra and implicitly the date of the Old Avestan texts have been calculated in a variety of ways. A favorite method is calculation based upon dates given in classical Greek sources. Traditionally this gives a date in the Median period, but more recently Humbach (Humbach et al. 1991: 24-27) has argued for a calculation that gives 1080 B.C. as the date of Zarathustra. All such calculations depend upon the reliability of the Greek sources and their sources and must therefore be viewed with a considerable amount of skepticism. Another method was applied by Burrow (1973: 138-139), who relied upon a statement in the *Farvardīn yašt* (Yt. 13.97) about Saēna, five generations after Zarathustra, who was "the first teacher with a hundred students," to calculate the date of composition of the text. Needless to say the usefulness of such an isolated statement is minimal.

The language of the older Avestan texts is quite homogeneous, indicating that the individual texts were composed at more or less the same time (Narten, 33-34; Kellens and Pirart 1988,1: 38-39). The linguistic testimony is clear: the language is uniform throughout the older Avesta. The case of the younger Avesta is quite different. Here we have evidence for a language in change, and texts ranging from grammatically correct and consistent to texts whose authors were no longer familiar with the inflections of the older language although they could still understand it well enough to compose ungrammatical, but understandable texts. In addition many texts are clearly no more than clerical compilations of bits and pieces of older material used for religious recitation. There is therefore no reason to believe that the texts contained in the younger Avesta

[4] The prayer *Aṣ̌əm vohū* is preserved in an "Old Sogdian" version, see Gershevitch *apud* Sims-Williams 1976: 75-82.

belong to even the same century, and the time span suggested above of about a millennium is not to be dismissed off-hand as unlikely. No study has yet been done, however, to classify the texts according to linguistic criteria and create a relative chronology for them.

The problem of analyzing and classifying the texts of the younger Avesta is compounded by several other problems connected with the Avesta, most of which result from two specific facts: The Avesta was committed to writing only in the mid-Sasanian period, probably sometime in the 4th-6th centuries AD, but our oldest manuscripts date only to the 13th century (see, e.g., Hoffmann and Narten 1989: 16) and can be shown to be descended from one single archetype, which can be dated approximately to 1000 AD (*ibid*: 17).

The manuscript tradition of the individual texts is also very variable. The larger part of the *Yasna*, including the older Avesta, rests on numerous good manuscripts, but most of the *Yašts* and the *Vidēvdād* are attested by less than a handful of good, though not necessarily very old, manuscripts. The so-called *Little Avesta*, a collection of ritual texts intended for the congregation, is transmitted in a large number of manuscripts, but in this case the frequent copying of the text has rendered it very corrupt.

As a result of this precarious transmission, most of the Avesta that was written down in the Sasanian period has actually been lost. The approximate size of the lost texts (about three quarters of the late Sasanian text) can be established through comparison of the extant texts with a complete inventory taken in the late Sasanian or early Muslim period and preserved in the Pahlavi *Dēnkard*, an encyclopedia of Zoroastrian learning (Duchesne-Guillemin 1962: 31).

Before it was written down, the Avesta was clearly transmitted orally only, and although the oral transmission must have been exceedingly good, it is less reliable than the corresponding Indian transmission of the Vedas. The Old Avestan texts and some of the hymnic material (the oldest *yašts*) were transmitted with a fidelity close to that of the Ṛgveda, but many of the more popular texts, like the Atharvaveda, have come down in a very corrupt form.

Characteristic features of the Avestan languages/dialects

Old Avestan is extremely archaic by Indo-Iranian standards, its grammar being largely identical with that of the oldest Ṛgveda. More specifically, it has preserved the old aspect system, with a living opposition between the present/imperfect and the aorist, and the old injunctive has preserved its old functions. It is therefore commonly, and justly, assumed that the Old Avestan texts were composed by authors who lived not many centuries later than the separation of the Indian and Iranian tribes and who still knew well the poetical language of the common Indo-Iranian period. On the other hand, as Old Avestan has all the

phonetic characteristics typical of Iranian languages,[5] some time (a few centuries) must have lapsed since the separation. As the time of these events itself needs clarification, the archaic nature of Old Avestan is by itself of little help in establishing the chronology (see, e.g., Kellens-Pirart 1988,1: 12-13).

Young Avestan represents a more evolved linguistic stage. Its most characteristic feature is the change in the verbal system from an aspect system to a tense system built on the opposition between a present tense and the past tense expressed by the imperfect, which in Young Avestan is mostly identical with the injunctive (*Ibid*).

Finally, it must be pointed out that Young Avestan is not the direct descendant of Old Avestan. As a matter of fact, Old Avestan shows a few novel features in its nominal morphology not shared by Young Avestan. Thus in Young Avestan the pronominal adjective *vīspa-* still takes the pronominal endings, as in the Vedas, while in Old Avestan this adjective takes the nominal ending, e.g., *daēuuā vīspåŋhō* "all the *daēuuas*" (see, e.g., Kellens 1989: 36). The use of this form may be formulaic, however, like Old Persian *aniyāha bagāha* "the other gods." Young Avestan has preserved the thematic dative singular ending *-āi*, while Old Avestan has *-āyā* (variously written).

One other point must be kept in mind: The eastern Middle Iranian languages are far more conservative in their grammar (morphology) than the western ones. It can, therefore, be expected that the ancient eastern Iranian languages may also have been more conservative than the western ones, and it is possible that Old Avestan remained archaic longer than the ancestor of Young Avestan and that the time span separating the two is not as great as it might have been if one were the direct descendant of the other. On the other hand, East Iranian languages all tend to stay archaic. There is little difference in the grammatical structures of Sogdian and Khotanese, for instance, so it is not particularly likely that Old and Young Avestan evolved at a different pace.

We have no way of investigating this issue any further, but, to conclude this discussion, let us for the moment assume that at least 300 years, possibly about 500 years (Kellens 1989: 36: "quelque quatre siècles"), separate the Old Avestan texts from the oldest Young Avestan texts.

Old Persian

Old Persian as seen in Darius's inscriptions is still very much of the Old Iranian type, with numerous verbal and nominal forms preserved. On the other hand there is case syncretism and formation of new verbal categories that presage a

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[5] E.g., Iranian *h* = Indian *s* (Ind. *asura-* ~ Ir. *ahura-*), spirantisation of stops before consonant including the Indo-Iranian laryngeal *H* (Ind. *satya-* ~ Av. *haiθiia-*, OPers. *hašiya-*; Ind. *pathaḥ* ~ Av. *paθō*).

Middle Iranian stage. Finally, by the time of Darius' second- and third-generation and later successors, the language had clearly turned into early Middle Persian in the sense that word-final syllables, including most grammatical endings, had been lost, as we can see from the fact that the scribes were no longer able to assign case and verb endings correctly.

The grammar of Old Persian is very similar to that of Young Avestan. A word of caution, must again be spoken, however, before we pursue this enquiry further. The corpus of Old Persian inscriptions is very small. Only from Darius I (6th century B.C.) do we have substantial texts, and most of these are both repetitive and formulaic, so that the actual amount of significant text is very limited.

If we compare Old Persian with Young Avestan, we see that the earliest Young Avestan corresponds to a stage of Old Persian immediately preceding, as it were, the stage attested in the inscriptions of Darius.[6] Parts of the still "correct" Young Avesta correspond by and large to the Old Persian of the inscriptions of Darius. Finally, some parts of the Young Avesta, in particular of the *Vidēvdād*, exhibit features very similar to those of late Old Persian, that is, texts consisting of "correct words with the wrong grammatical endings." In addition some of these texts (*Vidēvdād* and *Aogəmadaēca*) contain grammatical features reminiscent of Old Persian, such as the combination of demonstrative and relative pronouns *hō yō* "he who" (*Vd.* 19.1), *təm yim* "him whom" (*Aog.* §77), with which we may compare OPers. *haya* and *tayam*.

Place(s) of composition of the Avestan texts

To answer the question "where?" we have at our disposal the archaeological/historical evidence in addition to the internal evidence of the Avestan texts. In the following section I shall survey the internal evidence, beginning with the geographical names.

The earliest geographical names

A very few geographical names appear to be inherited from Indo-Iranian times. For instance, OPers. *Haraiva-*, Av. (acc.) *Harōiium* and OPers. *Harauvatī-*, Av. *Harax^{v}aitī-*, both of which in historical times are located in the area of southern Afghanistan (Herat and Kandahar), correspond to the two Vedic river names *Saráyu-* and *Sárasvatī-*. These correspondences are interesting, but tell us nothing about the early geography of the Indo-Iranian tribes.

6 On the verbal system of Old Persian, see Lazard 1976: 184-192; Skjaervø 1985.

Geographical names in the Avesta

The linguistic argument, as we saw above, cannot help us determine whether Avestan was spoken in northwestern Iran (Media and adjacent areas) or in northeastern Iran (central Asia, Afghanistan, and northeastern modern Iran). A Central-Asian location is supported, however, by the geographical horizon of the Avestan texts. Two Young Avestan texts contain lists of countries known to their authors, *Yašt* 10 and *Vidēvdād* chapter 1. The two lists differ considerably in terms of composition and are therefore most probably independent of one another. Both lists contain only countries situated in northeastern Iran, with the possible exception of Raγā mentioned in *Vd.* 1 (see below). The texts run as follows (of the *Vd.* I have given only the first two verses and then just listed the localities):

Yt. 10.14 (after Gershevitch): "where high sheltering mountains with ample pasture provide solicitous for cattle; where deep lakes stand with surging waves; where navigable rivers rush wide with a swell towards Parutian Iškata, Haraivian Margu, Sogdian Gava, and Chorasmia (*āiškatəm pourutəmca mourum hārōiium gaomca suxδəm x^vāirizəmca*).

Vd. 1.1: "Ahura Mazdā said to Zarathustra of the Spitamas: 'Zarathustra of the Spitamas, I have created a peaceful place, not *lacking happiness. For if I had not created, o Zarathustra of the Spitamas, a peaceful place, not *lacking happiness, the entire material existence would have gone forth to Airiianəm Vaējah.'

"As the first of places and settlements, and the best, I fashioned forth, I who am Ahura Mazdā, Airiianəm Vaējah of the Good Dāitiiā (river). Then, as its adversary, Aŋra Mainiiu full of death, whittled forth the reddish dragon and the demon-created winter.

"As the second ..."

1. *Airiianəm vaējō* "the Aryan expanse"
2. *Gāum yim suγδō.šaiianəm* "Gåva inhabited by Sogdians"
3. *Mourum sūrəm* "strong Marv"
4. *Bāxδīm srīrąm ərəδβō.drafšąm* "Balkh the beautiful with uplifted banners"
5. *Nisāim yim antarə Mourumca Bāxδīmca* "Nisāya, which is between Marv and Balkh"
6. *Harōiiūm yim viš.harəzanəm* "Herat, the .?."
7. *Vaēkərətəm yim dužakō.šaiianəm* "Vaikrta, inhabited by hedgehogs(?)"
8. *Uruuąm pouru.vāstrąm* "Urvā with plentiful pasture"
9. *Xnəntəm yim Vəhrkānō.šaiianəm* "Xnanta, inhabited by Hyrcanians"
10. *Harax^{v}aitīm srīrąm* "Arachosia the beautiful"
11. *Haētumantəm raēuuantəm x^varənaŋ^{v}hantəm* "Helmand, rich and glorious"
12. *Raγąm θrizantūm* "Raga of the three tribes"
13. *Caxrəm sūrəm ašauuanəm "Caxra, beautiful and righteous"*
14. *Varənəm yim caθru-gaošəm* "Varna the four-cornered"
15. *Yōi hapta Həndu* "the Seven Rivers"
16. *Upa aodaēšu Raŋhaiiå *yōi asārō *aiβiiāxšaiieinti* "those who watch, *unprotected, on the -s of Ranghā"

Several of these districts are identifiable, and about the others several more or less likely proposals have been made: all are located to the east of the Caspian ocean, with the possible exception of Raγā (see below).

The river Haētumant-, which flows into the Kąsaoiia sea, corresponds to the modern Helmand in Sistan, which flows westward into Lake Hamun. This lake is given prominence in Yt. 19 as the locus of the future saviour, who will appear at the end of time and expel evil from the world (see below). It is therefore described in some detail, including eight tributaries in addition to the Helmand, several of which have names that are still applied to these rivers (Gnoli 1967). Archaeological excavations by the Italian Mission at Šahr-e Suxta (Tosi 1984, etc.) in the Helmand delta have shown that in the mid-3rd millennium it "was apparently the largest settlement on the eastern Iranian plateau" (Dyson and Voigt 1989: 474). When the site was gradually abandoned toward the end of the Bronze Age, numerous villages in the surroundings remained (*ibid*, 477), indicating that settlement continued into the "Avestan period."

Western Iranian place names?

Possible western place names are the following:

Raγā-, which is also the ancient name of Median Ragā in the Achaemenid inscriptions (Darius, Bisotun 2.13: "a land in Media called Ragā") and modern Ray south of Tehran. In the *Vidēvdād*, however, it is listed between the Helmand river and Caxra (assumed to be modern Carx near Ghazna in southeast Afghanistan) and is therefore most probably different from Median Ragā and modern Ray. There is another Raγā, however, mentioned in the Avesta, which has the epithet *zaraθuštriš* (Y.19.18). This town is mentioned in a commentary on the sacred prayer *Aṣ̌əm vohū* to illustrate the concept of *ratu* (roughly "temporal master"): instead of having five *ratus* like other city states, Zarathustrian Raγā had only four, but this information is obviously not sufficient to identify the city with Ragā in Media.

Lake Caēcašta-, on the shore of which Kauui Haosrauuah sacrificed (Yt. 5.49) is identified in the later tradition with the Urmia sea in Azerbaijan, western Iran, but again the Avesta itself contains no evidence for such a location.

The adjective *māzaniia-* is a standard epithet of *daēuuas* often coupled with *varəniia-* (e.g., "grant me this boon, so that I may smash one-third of the *māzaniia daēuas* and of the *varəniia daēuas*"). The much later Zoroastrian tradition equates *māzaniia-* with modern Māzandarān, south of the Caspian Sea (accepted by Burrow). There is no indication in the Avesta, however, that the word is a geographical term or indeed that it refers to that precise location. The word is much more likely to mean "gigantic" (Gnoli 1980: 44-50, with references).

Northeastern homeland of the Avesta

It is therefore impossible to avoid the conclusion that the oldest Young Avestan texts were composed in northeastern Iran and that they travelled from there

south- and southwestward into southwestern Iran. I doubt if it is possible to be more specific on this point, and precise location to Choresmia (Henning 1951: 44-45; see Boyce 1975: 3-4), Sistan (or between the Hindu Kush and the Helmand; Gnoli 1980: 227), or elsewhere, must still, in my opinion, be viewed with healthy skepticism.

I regard the question of the identity of *airiianəm vaējō* "the Aryan expanse" as insoluble and shall not discuss it here (see, e.g., Humbach 1984: 15-23; Gnoli 1989: 38-51). As the mythical homeland of the Iranians, I think it is quite likely that it changed "identity" as the tribes moved. Gnoli concludes from his discussion of the expression that it was simply an invention by priests who wished "to place their Prophet at the centre of the world."

Date(s) of composition of the Avestan texts

Chronology of the Avesta

I shall approach this subject in reverse chronological order, first discussing the "long" and subsequently the "short" chronology. The fact that the oldest Young Avestan texts apparently contain no reference to western Iran, including Media, would seem to indicate that they were composed in eastern Iran before the Median domination reached that area. This gives us a *terminus ante quem* of ca. 700 B.C. for the oldest Young Avestan texts, that is, mainly the old *yašts*. An "early date" for the oldest *yašts* would therefore be 9th-8th centuries B.C., perhaps even the 10th century.

The mention of Raγā in some Young Avestan texts *may* indicate that these were composed during the Median period, that is 700-550 B.C.. Finally, the texts that exhibit knowledge of word meanings but not of grammatical forms may have been composed, perhaps in Persis itself, in the second half of the Achaemenid period, about 400 B.C.. These include the Zarathustra legend in *Vidēvdād* chap. 19. This text contains no references to western Iran or to contemporary events, but in this case the text is such that we would not expect any. Avestan liturgical texts may have been compiled even after this period, but we have no means of determining which or when. If they were, no mention of western Iran or contemporary history ever found its way into them.

The corresponding "early date" for the older Avesta would be the 14th-11th centuries B.C., close to the middle of the second millennium (similarly Boyce 1992: 44-45). This would then postdate the end of the Bactria-Margiana Archaeological Complex by at least 300 years. An "early date" for the westward movement of the Avesta and its teachings would subsequently fall somewhere in the Median period, after which it spread into the farthest western reaches of Asia under the Achaemenids.

On the other hand we may set up a "late date" chronology, based on the consideration that the east Iranian languages tended to stay more archaic than the western ones. We may then bring the date of the oldest *yašts* down to the early Median period and the Old Avestan texts, on the basis of the same consideration, to just before the Median period or even into the beginning of the Median period.

The extreme "late date"- 8th-7th centuries B.C. - for Old Avestan presents serious problems, however. Not only will that bring the oldest *yašts* with their geographical and political themes well into the Achaemenid period, requiring one to explain the absence of Avestan references to the Medes, Achaemenids (note also Gnoli 1989: 65-66), and western Iran, but it also forces one to assume that Old Avestan remained virtually unchanged for at least a millennium. In addition, the fact that the religion of an East-Iranian people spread almost instantaneously throughout the entire Iranian Plateau would require some explanation.

An area that till now has received little attention, but is potentially of utmost importance for the study of external, especially Near Eastern, influences on the Avestan society and thought, is astronomy. An exhaustive study of Avestan astronomical ideas is currently being prepared by A. Panaino. The existence of precise astronomical ideas may indeed provide chronological links not only with Mesopotamia but also with India.

The "Avestan" society

"Old Avestan" society

The older Avesta consists mostly (exclusively?) of ritual texts and provides few indications about the society in which they were produced. Numerous attempts have been made throughout the 20th century to wring information out of these texts, many or most of these having been tainted by scholars' preconceived notions about what they were going to find, partly influenced by later literature, not only the younger Avesta, but even much later texts, such as the Pahlavi books and the Persian literature from the Muslim period, etc. The last forty years or so have seen a reaction to this approach, however, and many scholars are now subjecting these texts to renewed scrutiny based on careful analysis of grammar and vocabulary, applying strict rules of comparative linguistics. The result of this new approach has been a better understanding of the nature of the Old Avestan texts themselves, but not so much the society in which they were produced. A few facts remain clear:

There are terms for various societal groups: *vīs-* "house," *x^vaētu-* "family," *vərəzə̄na-* "clan," *airiiaman-* "tribe," *daxiiu-* "*nation," but, except for their

hierarchical ordering, the exact connotations of these terms cannot be determined from the texts themselves.

Chariots are mentioned in the Gathas (implicitly in *raθī-* "charioteer"), but these belong to the Indo-Iranian period, as they also feature prominently in the Ṛgveda.

The society had domestic animals - cow (*gau-*), horses (*aspa-*), and camels (*uštra-*) - and pasture for the animals, but "there is not a single simile there drawn from tilling the soil - no mention of plough or corn, seedtime or harvest, though such things are much spoken of in the Younger Avesta" (Boyce 1975: 14). The importance of animals is underscored by the personal names in the Gathas, which contain the above animals as second element, for example in Huuō.guua, Vištāspa, Frašaoštra, Zaraθuštra etc.

This society knew metals, notably *aiiah-*. The original meaning of this word may have been "bronze," but its exact meaning in the *Gathas* cannot be determined. It should be noted, however, that the word for "iron" in the Iranian languages is different: namely, **āćwanya-*, possibly derived from **āću-* "pointed, sharp."

The centre of the religion evidenced by the *Gathas* was the opposition and conflict between day and night, light and darkness, order and deceit. The supreme god was Ahura Mazdā, who was credited with the orderly arrangement of the cosmos. The cosmos itself was conceived of as an enormous tent, with tent poles and plugs, an archaic concept typical of nomadic peoples (Kellens 1991: 41-46). Settled populations with solid houses thought of the sky as made out of firm materials such as stone or crystal, and the Iranians in due course adapted this concept as well. The fire played a crucial role, as in India, as the transmitter of the human sacrifice to the gods and the approval of the gods back to the humans. After death the deserving ones were allotted a place in the luminous paradise. Traveling through the beyond they were accompanied by a female figure who embodied the "view" (*daēnā-*) they had taken in life of the good and bad impulses in man to side with order, goodness, and light or lie, evil, and darkness.

"Young Avestan" society

In the oldest parts of the younger Avesta, the *yašts*, a picture is painted of a warlike society divided into three classes, later four, and several socio-political units. The triple-class system is the one inherited from the Indo-European past of priests, warriors, and husbandmen. The fourth class, the artisans, may not have been added till in the Achaemenid period. The socio-political units are the house (*nmāna-*), village (*vīs-*), tribe (*zantu-*), and nation (*daŋ́hu-*). Political conflicts play an important role, involving large armies and bloody battles, possibly

a reflection of the political constellations of central Asia in the early first millennium B.C..

Architectural imagery plays an important role: columns supporting "towering" buildings, beams, porches, and so on, are another clear indication of a settled society.

In religion, for the first time, we find allusions to the cosmological myth well known from later times: the stages of the creation of Ahura Mazdā; the attack of the aggressor, Aŋra Mainiiu and his coming through the division between the world of light and that of darkness. In addition we have the interesting image of the sky lying upon the earth like a bird on an egg (*Yt.* 13). We also have for the first time a description of the end of time, when Astuuaṯ.ərəta will rise out of Lake Kąsaoiia to banish the lie from the world of order (*Yt.* 19). Numerous deities are invoked or simply mentioned, most of whom are inherited, but some only of Iranian date, such as the goddesses Aṣ̌i and Druuāspā, both of whom were worshipped in central Asia during the Kushan period (Duchesne-Guillemin 1962: 240).

The Young Avestan texts from the second layer, especially the oldest parts of the *Vidēvdād*, contain further myths, notably those of Ahura Mazdā's creation of the countries and Aŋra Mainiiu's counter-creations (*Vd.* 1), and of Yima's reign and his Noah-like action in saving living beings from a killer winter (*Vd.* 2). In several texts belonging to this group we also find descriptions of the fate of the dead: the judgment and their journey across the bridge leading into paradise. In the later(?) portions of the *Vidēvdād* we then have comprehensive rules and regulations for behavior, especially purity laws, while in the latest (?) layer of literary texts we finally find the legend of Zarathustra's confrontation with Aŋra Mainiiu (*Vd.* 19).

Legendary history

Fragments of numerous mythical texts are scattered throughout the Avesta, some of which are no more than alluded to. Many of them are clearly related to Indian myths, others are of Iranian origin, most importantly the mythical legends recounting the struggle between the Aryans and the Turanians, for which historical models, such as struggles between immigrating Aryans and indigenous populations, have been sought.

In contrast, for instance, to Sumerian and Akkadian historical texts, the Old Persian inscriptions do not mention any mythical reigns other than that of Achaemenes as the founder of the dynasty. The Avesta, especially the *yašts,* however, contains a list of rulers of the land of Iran, stretching from mythological to legendary times, that was later elaborated upon by both the Sasanian and the early Islamic authors and reached its final form in Ferdowsi's *Šahnāme*, the

national epic of the Iranians. The last of these rulers was Vištāspa, Zarathustra's patron.

It has been a matter of some speculation whether any of these rulers were actually historical figures. If they were, then the Avesta would have preserved valuable historical information about the prehistory of the Iranian tribes in central Asia after their separation from the Indians. The most exhaustive study on this subject was carried out by Arthur Christensen in his book on the Kayanian dynasty of Iran (Christensen 1932). In it he argued that the rulers who are styled *Kauui* in the Avesta (*Kauui Kauuāta*, etc.) were most probably historical figures, in contrast to those preceding them, who did not carry this title and were probably just mythological figures (*Yima*, *Θraētaona*, etc.). That the latter group is comprised of mythological figures is easily proved by the fact that they are common to both the old Indians and the old Iranians and therefore must have belonged to the pre-Iranian traditions of the Indo-Iranians. Therefore, they clearly cannot belong to the early history of the Iranians after their separation from the Indians.

But the list of *Kauuis* also contains at least one figure that is also found in Indian tradition, as shown by Lommel and Dumézil, namely *Kauui Usan/ Usaδan*, who both by name and by the legends associated with him corresponds to *Kāvya Uśanas* of Indian tradition. There is therefore every reason to conclude that the list of *Kauuis* also contains only mythological figures (Kellens 1979). As for the title *kauui* itself, although in the later Zoroastrian tradition it designates political rulers, there is no evidence in the Avesta that it is used other than as a designation of a special kind of priest. In the *Gathas* it is closely related to terms such as *karapan* and *usij*, which both designate special kinds of priests, and its Indian relative *kavi* has nothing to do with political power, but designates the poet priest. The *kauuis* listed in the *yašts* are also not described as rulers, for which Avestan has a series of very specific terms consisting of a word for territory plus *paiti* "lord." When *kauui* is not used as a title it is commonly found in lists of opponents of the Zoroastrian religion, a notion inherited from the *Gathas*, where the *kauuis* are portrayed as opponents of Zarathustra, with the exception of *Kauui Vištāspa*, who supported him.

Nevertheless, the Gathic *Kauui Vištāspa* is commonly portrayed in Western scholarly literature as the royal patron of Zarathustra, primarily, no doubt, through the influence of the later Zoroastrian tradition, (in which *Vištāsp* is a king who, together with his minister, *J̌āmāsp*, goes to battle against *Arzāsp* in the defense of the new faith), but partly also through the interpretation of some Avestan passages. Thus, in Yt 5.68, *Jāmāspa* is said to have sacrificed to Anāhitā as he confronted an army of liers and *daēua* worshipers, and in passages of Yt. 19 *Kauui Vištāspa* is said to have fought for the good religion. The Avestan passages provide no basis for any interpretation of *Kauui Vištāspa*'s position other than as a supporter of the faith (Kellens 1979: 51). On the basis of his

epithet *zaraθuštriš* in Y. 53.2 Kellens (Kellens and Pirart 1988: 9) concludes that he is the son of Zarathustra. As this passage contains the only evidence for his relationship to Zarathustra, Kellens' argument is important; however, it is not clear why *zaraθuštriš* must mean "son of Zarathustra", rather than just "followers of Zarathustra." The fact that the later tradition depicts Vištāspa as Zarathustra's royal patron does not compel us to impose this interpretation on the Gathic Vištāspa.

Early relations between the Iranians and the Turas, or Turanians, seem to be reflected in a story alluded to several times in the *yašts* about the *Tura Fraŋrasiian*, whose constant intent is said to be the defeat of the Aryan countries. He is, however, never granted any support by the deities whom he implores for help and is defeated by his Aryan adversary *Haosrauuah.* The evidence is obviously too tenuous to allow any conclusions as to who the Turas were or at what time the conflict took place. Other ethnic or tribal groups are the Naotaras, friends(?) of the Turanians, and the Xštauuis, who were in conflict with the Turanian Dānus. So few details of the Iranian myths are known, however, that it is hardly possible to link them with Indian myths and legends.

The migration of the Avesta

Evidence for the Avesta in southwestern Iran

We should keep in mind that there is no compelling reason for assuming that the Avesta was brought into (western) Iran by the people who had produced it. It does, however, seem likely that the initial impetus to the spread of the Avestan religion was given by political expansion and population movement. As the early history of Iran, before the Achaemenid period, is very unclear, however, the history of the transmission of the holy books in this period is wrapped in darkness.

The first concrete evidence for its presence in Persis is provided by the nomenclature of the Achaemenid kings (see, e.g., Boyce 1982: 41; Kellens and Pirart 1988,1: 40-41). Thus, if Vištāspa is the name of a supporter of Zarathustra in the *Gathas*, in the younger Avesta he is featured prominently in the early legendary history of the Iranians as a member of the lineage of the *kavis.* Darius himself bears a name with clear Gathic allusions. Artaxerxes has a name incorporating two of the central religious concepts of the *Gathas* and the younger *Avesta*: *arta* and *xšaça.* In view of these onomastic correspondences there can be little doubt that the Auramazdā worshipped by the Achaemenid kings is identical with the Ahura Mazdā of the *Avesta* and that the Achaemenid pro-scription of the *daivas* and their emphasis on being *artāvan* are examples of

the religious beliefs expressed in the Avesta. Note also the name *Ṛtacanah* "loving Ṛta" in the Elamite and Aramaic documents from Persepolis.

The Persepolis texts contain numerous deities and theophoric names (Mazdadāta, Miθrapāta, Bagapāta, etc.) which show that Avestan deities other than Ahuramazdā, as well as non-Avestan deities, were worshipped (or at least known) in southwestern Iran under Darius and Xerxes.

Artaxerxes II (405/6-359/8) in his inscriptions called upon Miθra and Anāhitā besides Ahuramazdā to protect him and his work, and the Aramaic letters from Elephantine written in that period contain such personal names of Avestan background as *Ārmatīdāta* "given by Ārmatī."

From about 490 B.C. we find the Avestan calendar in use in Cappadocia, one of the western provinces of the Achaemenid empire (Duchesne-Guillemin 1962: 121). It soon replaced the old Persian "farmer's" calendar everywhere.

The names of the supreme god and the prophet are not mentioned in the Greek sources until about 300 B.C. (Plato's *Alcibiades* I.121). Herodotus, discussing the customs of the Medes, mentioned the Magi, who are not prominent in the Avesta, and the killing of certain noxious animals, which is an important feature of the Avestan teachings. Discussing the customs of the Persians he mentioned that they worshipped the sky in high places, as do many of the heroes in the *yašts*, and exposed their dead to dogs and birds, the latter a feature of the *Vidēvdād.* It would therefore seem that the Avesta, Ahuramazdā, and Zarathustra were not yet well known in the western reaches of the Persian empire, from where Herodotus took his informants.

Conclusion

It will be clear from the above that the Avesta does indeed contain source material for the early history of the Iranians, but much needs to be done, or redone, before this material can be fully exploited. Most urgently needed is an up-to-date edition of the most important parts of the Avesta, such as all the old *yašts* and similar texts (e.g., the *Hōm yašt*) and the *Vidēvdād.* It is encouraging that the last years have witnessed a renewed interest in this work, but much remains to be done. Next a complete analysis of the entire Young Avestan corpus with a view to determine the internal chronology of the texts must be undertaken.

This philological work, if combined with progress in archaeological research, with an understanding of the archaeological evidence, and with the ongoing reevaluation of the historical sources for the Iranian tribes of the first millennium B.C., is quite likely to provide important results for our total conception of this history. Even though, fifteen years ago B. Schlerath concluded that the Avestan passages containing references to realia or political history are not suited to be included in a source book for Central Asia, I do not think we need

to be quite so pessimistic. To summarize some of the more positive results of this survey we should note that as regards the history of the Iranian migrations, it would seem that the Avesta contains evidence that by the time of the composition of the oldest *yašts* the Iranians had spread throughout southern central Asia as well as modern Afghanistan and Sistan. On the other hand there is no clear evidence that they had yet reached the western areas of the Iranian Plateau. The detailed geography of the Helmand basin, finally, may indicate that this was where they were currently settled, while the traditions of more northerly regions, from Chorasmia to Bactria, may reflect either the memory of the route they had traveled, contemporary political relations, or both.

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Arvind Sharma

7. The Aryan question: Some general considerations

In this conference the Aryan question has been analysed from several perspectives such as the textual, the archaeological, the anthropological and the historiographical. Such a multi-disciplinary approach, while it confers many benefits, also renders the enterprise vulnerable to certain dangers. Let me identify only two of them here: 1) The various methods mentioned above represent areas of specialisation which, by definition, involve focussing one's intellectual energies in a single direction. All the benefits which accrue from such concentration notwithstanding, it carries with it a certain risk arising from the fact that penetration is gained at the expense of scope. 2) The battery of methods referred to earlier represent developments within the modern Western intellectual tradition and there is little doubt that they have proved immensely valuable in the recovery of the past. However, to the extent that these modern approaches supplement traditional approaches of the culture they study, there is a risk that something which is valuable in the received tradition may be discarded. In such a situation, the cliché of throwing the baby away with the bathwater ceases to be a cliché and comes to represent an actual danger.

This paper is an attempt to remain alert to these dangers and to prevent common sense from becoming the casualty of tunnel vision and, further, to prevent the enthusiasm for modern methods from prematurely foreclosing access to traditional resources which might be relevant and even helpful in the context of our present concerns. For the sake of convenience I have numbered the various points which struck me as significant in this respect. They run as follows:

1) It might seem too obvious a point to mention but it is worth reminding ourselves, especially in dealing with such a vexed question as the "Aryan", of a very general principle of historiography: that scholars are quite capable of arriving at different conclusions on the basis of the same evidence, and at the same conclusion on the basis of different or even divergent pieces of evidence. Of the two, the former is perhaps more egregious as common sense would presuppose that similar evidence would produce similar results. For example, using the Manusmṛti, first translated in 1794, Mill and Elphinstone arrived at *opposite* conclusions regarding the condition of the *śūdras*. Mill concluded that the vices

of caste subordination were carried to a more destructive height among the Hindus than among any other people. Elphinstone, by contrast, deduced that the condition of the *śūdras* "was much better than that of the public slaves under some ancient republics and, indeed, than that of the villains of the Middle Ages, or any other servile class with which we are acquainted". He also perceived that such a servile class did not exist any longer in his time (Sharma 1980: 1-2).

2) The possible influence of current events on historiography should not be overlooked. History is a record of the past as understood in the present. This interaction may be marginal in some cases, more serious in others. For instance, R. S. Sharma writes,

In 1847 it was suggested by Roth that the śūdras might have been outside the pale of Aryan society. Since then it has usually been held that the fourth varṇa of brāhmanical society was mainly formed by the non-Aryan population, who were reduced to that position by the Aryan conquerors. *This view continues to derive support from the analogy of conflict between the white-coloured Europeans and the non-white population of Asia and Africa.* (Sharma 1980: 9, emphasis added)

A glaring example of this tendency has been identified in recent times. It has been demonstrated (Russell 1991) that the geographical view of a flat earth, ascribed to the medieval world by modern scientists, is really an invention of our modern age seeking to emphasise its "progressive" nature by way of contrast with a benighted medieval age. In fact, most medieval scholars, with two notable exceptions, by and large held the earth to be spherical in shape!

3) There is the virtually unanimous tradition in India that the Veda as we have it is a compilation; and what is more significant, that this compilation has a compiler and the name of the compiler is Vedavyāsa. There is some difference of opinion whether the term *vyāsa* is a name or a title, the latter suggestion carrying the implication that several hands may be involved in the compilation.

It seems to me that the *significance* of this fact - that the text of the Vedas, as we have it, was *deliberately* put together - has been overlooked in most if not all modern studies. The various divisions of the Vedas are, instead, taken to represent the *natural* progression of religious and philosophical life in Vedic India. Thus even such a cautious and precise scholar as M. Hiriyanna appears to have - at least temporarily - fallen into this trap as the introduction to his *The Essentials of Indian Philosophy* shows:

The earliest source of our information regarding Indian thought is the Veda, which signifies, as it has been stated, not a single work but a whole literature. This literature is usually regarded as consisting of two parts, viz. Mantras and Brāhmaṇas. Several of the early Upaniṣads are included in the latter; but, on account of their great importance in the history of Indian thought, they deserve to be reckoned as a separate portion of the Veda. Broadly speaking, the three parts mark successive stages in the growth of Vedic literature, and also stand for teachings that are more or less distinct. (Hiriyanna 1949: 9)

I think that Indian scholars have not spoken up on this point for fear of being

dubbed credulous and traditional, instead of appearing critical and modern (whatever that means) - but I think that the following account must be taken into consideration:

> According to the Viṣṇu Purāna, the original Veda, first revealed by God to the ṛṣis, consisted of one hundred thousand verses, and had four divisions. With the efflux of time these divisions got mixed up and many portions of the Vedas fell into obscurity. So, in the beginning of the Dvāpara Age, Kṛṣṇa Dvaipāyana resuscitated Vedic study and classified the work according to the four ancient divisions of Ṛk, Yajus, Sāman, and Atharvan. In order to perpetuate the study of the Vedas in a proper form, he taught them to his four principal disciples. He gave the Ṛgveda to Paila, the Yajurveda to Vaiśampāyana, the Sāmaveda to Jaimini and the Atharvaveda to Sumanta. As he reclassified the Vedas, he became renowned by the name of *veda-vyāsa*, i.e. classifier of the Vedas. This tradition is so strong among the Hindu scholars that it cannot but be accepted as having some historical basis. (Sharvananda 1958: 182-183)

The fact that the suggestion comes from a Swami does not help the case, but if, overcoming the genetic fallacy for a moment, we examine the implications of what has been said I think its effects will be wholesome.

The enormity of the situation may be illustrated with the help of an example. It is as if a scholar or a team of scholars were to prepare a book of readings on modern India and decided that they will first cite the materialists, then the theists, then the transtheists in that order. In such a compilation, *sans* the name-tags, passages from the works of M.N. Roy and perhaps Nehru will appear probably first, followed by those of Rammohan Roy, Ramakrishna, Dayananda Sarasvati and Mahatma Gandhi. These in turn will be succeeded by the works of Vivekananda, Ramana and Radhakrishnan.

The historian of the future, working with these passages alone at his disposal and without the biodata of the people mentioned - all of which would belong to the dim past anyway - would with confidence, perhaps with undue confidence, following our procedure, describe the developments of this age "the determination of the exact chronological limits [of which] is not possible", as representing the evolution of the people who called themselves "Hindus" from materialism, to theism, to monism. The inappropriateness of such a conclusion, given our present state of knowledge about modern India (1800-1947), is obvious; could it be that our reconstruction of the Vedic past on the basis of a deliberately assembled compilation is equally so?

Perhaps we can do no better. But surely we can do better than to pretend that the emperor has clothes! We can choose to contemplate his stark nudity instead! Genteel and subtle suggestions are not wanting from some scholars on this point but perhaps they have been so genteel as to as to have been politely overlooked and so subtle as to have been missed. Thus Hiriyanna (1949: 17-18) remarks: "To judge from extant works, ritualism in this extreme form appears to be the predominant teaching of the later Vedic period; but as the other two tendencies of monotheism and monism also undoubtedly prevailed then, the promi-

nent place it occupies in these works [the Brāhmaṇa] is, in all probability, the result of the bias in the direction of the scholar-priests, who were responsible for the compilation of the Veda as it has come down to us". The point is that in dealing with the Aryan question we are blind men reconstructing an animal from parts that may be incomplete and out of sequence. This is not a message of pessimism. Rather, it stresses that Vedic literature must be linguistically restructured chronologically on the basis of modern methods, an approach whose potential in the present context is amply demonstrated in Witzel's research (Witzel 1987, 1989, Chapters 4 and 14 of this volume etc.).

Some measure of ambiguity surrounds the question of whether such a restoration is possible. Within two paragraphs Louis Renou both raises one's hopes and dashes them. He raises them when he writes that,

> As has been explained by Bergaigne whose results Oldenberg has made more exact, the arrangement of the hymns and verses proceeds according to precise rules: in Maṇḍala II to VII the arrangement of the hymns is by gods, with Agni at the head, followed by Indra, and in Maṇḍala IX by metres; within any one series, determined by deity or by metre, the arrangement of the hymns is in descending order of the number of verses; when several hymns have the same number of verses, they are arranged in descending order of the length of the metre; the order of the series in a maṇḍala is the descending order of the number of hymns in the series; finally Maṇḍala II-VII are themselves arranged according to the number of hymns they contain. Similar rules, but qualified by other tendencies, govern Maṇḍala I, VIII and X. The discovery of these rules has allowed the discovery of many more interpolations, and the reconstruction of a more ancient model of the Saṃhitā, in which hymns forming an artificial unity are to be divided into smaller groups, pragātha "verse groups", or tṛca "groups of three ṛk". This is the basis of the internal criticism of the Veda. (Renou 1957: 2, diacritics supplied)

But he dashes them when he goes on to say that,

> The Ṛgveda was codified at a certain date which cannot be determined, but is certainly long after the assembly of its different parts. This codification consisted in subjecting to a definite arrangement hymns or series of hymns from different sources which had been preserved in the priestly families from various periods. This was accompanied by changes of language, intended in general to accommodate the text to the state of the language at the time, but sometimes, on the other hand, to make it more archaic. There have been later additions, and a certain amount of rearrangement; *the original form of the Saṃhitā is lost to us as a result.* We do not know how the early materials have been made use of. (Renou 1957: 3, emphasis added)

It is "lost" but can it not be reconstructed in light of the previous comments?

4) The "politics" of the Aryan question also deserve consideration, with the growing recognition of what has been called the politics of representation. The following points in this connection are worth keeping in mind:

(i) It is often thought that a strong nationalist sentiment supports the tracing of the origin of the Aryans to India. Yet it is not entirely clear to me why the claim of an Indian homeland of the Aryans should be considered nationalistic. For to me, to be a nationalist is, ultimately, also to be an imperialist. It is a very

timid and defensive form of nationalism which will claim India as the homeland of the Aryans on nationalistic grounds. A vigorous and aggressive nationalism would trace the original homeland outside India *as far as possible* - the way B.G. Tilak placed it in the Arctic circle - thus opening up the entire area from India to the circumpolar regions as territory India could potentially lay claim to depending on how strong it was militarily. In other words, there is a strong case for avoiding the genetic fallacy when it comes to Indian claims on nationalistic grounds for an Aryan homeland either within or outside India. Nationalist sentiments can support both claims.

(ii) In South India, especially Tamil Nadu, the Aryans are racially contrasted with the Dravidians. This contrast is highly problematical especially when the Aryans are identified with Brahmans. It generates the following contradictions: (a) The Brahmans are despised as custodians of the Vedas, but one of the leitmotifs of the Ṛgveda is the killing of Vṛtra - a Brahman, by Indra - a Kṣatriya! The pattern is repeated in the Rāmāyaṇa which is likewise despised as a text of Aryan (i.e. Brahman) dominance. Therein Rāvaṇa, a Brahman, is also killed by a Kṣatriya. (b) Sanskrit and Hindi are despised as "Aryan" or Indo-European languages in favour of English which, as it turns out, also belongs to the Indo-European family. (c) The Dravidian movement applauds Buddhism and Jainism for their deviation from Brāhmanical and "Aryan" orthodoxy but does not seem to realise the pride with which these movements consider themselves Aryan, as illustrated by the word *ariyasaccam* (the Aryan truth) in Buddhism. Such examples could be multiplied.

I am not being facetious in referring to the politics of the Aryan question. It involves the politics of representation. It is a serious matter not merely politically but also historically, for what the "politics" is doing here is concealing the complexity of the issue. After all, the question of the Aryan homeland continues to be a matter of debate even if scholars in general, and not just in India, do not seem to have an axe to grind the way they used to. And the current Dravidian view of the Aryan ignores the whole issue that there could be differences of opinions, religious or otherwise, among the Aryans themselves. In fact Hiriyanna (1949: 40), suggests that "to judge from the fact that the followers of [the] heterodox teaching also were generally Aryans," a "split among the thinking sections of the Aryans themselves" is not unlikely, though perhaps influenced by indigenous views. In fact M. Hiriyanna (1949: 35) attributes the rise of Bhāgavatism to a "non-Vedic, though not non-Aryan, source".

5) It is useful to bear in mind that the logical does not necessarily coincide with the historical. This point has a special bearing on the determination of the Indo-European homeland, now generally believed to be south Russia, as it provides a convenient "staging area" for the original speakers of various languages of that family, to spread out into Europe, into the Middle East, into Iran and into India. Consider, however, the following scenario. A thousand years from

now the linguist is trying to identify the original land where English was spoken, which is now found in various forms flourishing in Australia, New Zealand, North America, U.K. and the Indian subcontinent. Kindly remember that the actual facts, as known to you and me, have dissolved in the mist of antiquity. How very plausible it would be to conclude that North America is the homeland of the English language, whence it spread eastward to Europe and Asia, and westward to Hawaii, Australia and New Zealand. I shared this scenario with great diffidence with Professor George Cardona some years ago; it is because he did not think it merely fanciful that I have dared present it here in the hope of demonstrating that what *actually* happened could well be at variance with what we think must have happened. Thus on the one had it may be argued that:

> There being - in spite of Penka and his school - no organic relation between language on the one hand and race and geography on the other, our method cannot but be empirical. And the obviously most important empiric fact about the known Indo-European languages is that quite a large number of them are crowded together within the comparatively small space of Europe, covering practically the whole of that continent, whereas outside Europe, instead of a compact body of idioms of that speech-family are found only scattered members of it, stretching out, as it were, in single file between the Semitic and the Altaic-Finno-Ugrian linguistic areas, and ending, at least in the age of the earlier Ṛgveda, in the region of the Panjāb. The geographical distribution of the idioms of the Indo-European speech-family, therefore, does suggest that the original home of the Indo-Europeans is to be sought rather in Europe than in Asia. Moreover, of all the living Indo-European languages of the present day, it is Lithuanian, not Sanskrit (even if considered a living language) or any of its daughter dialects, that has kept closest to the basic idiom reconstructed by Comparative Philology. (Ghosh 1965a: 206)

On the other hand it seems that it is possible to reach a different conclusion on the point with equal plausibility. Thus the same author goes on to say:

> Now if the two oldest known Indo-European tribes, the Hittites and the Indo-Iranians, appear about the same time (c. 2000 B.C.) in Cappadocia and Central Asia respectively, then it will be reasonable to conclude that the original home whence both the Hittites and the Indo-Iranians came was more or less equidistant from Cappadocia and Central Asia. Hence follows that neither India nor central or Western Europe could have been the original Indo-European home. (Ghosh 1965a: 211)

He (1965a: 211-212) then suggests Eastern Europe as a possibility on grounds which he himself concedes are purely speculative! Perhaps the thrust of my argument is better illustrated with a hypothetical example. In connection with the suggestion that India was the homeland of the Aryans we are told (Ghosh 1965a: 206): "It may be reasonably urged that had India been the original home of the Aryans they would certainly have tried fully to Aryanise the whole of this sub-continent before crossing the frontier barriers in quest of adventure." To me this argument seems to have about as much force as claiming that the British could not have transplanted the English language in America when they could not do so next door in Europe. Besides, it is overlooked that even those who hold India to be the cradle of the Aryans do not consider the *saptasindhu* as

their only possible home. Klaus Klostemeier (1989: 37) notes: "F.E. Pargiter, a great Puranic scholar, identifying the Vedic Aryans with the Puranic Ailas, thinks that they originally came into India about 2050 B.C. from the mid-Himālayas and first settled in the area of Prayāga, from where they started their expansion toward the northwest. Though Pargiter's case is quite strong, Indologists in general continue to hold the theory that the Aryans came into India from the northwest, either from southern Russia or from Iran, after separating from the Iranians."

According to this view, then, the Aryan presence in the northwest would itself represent Aryan expansion from *within* India.

6) The advent of the Aryans in India is, of course, a matter of enormous controversy as regards its age, pattern, consequences or even whether it occurred at all! In this section I would like to bring some cultural questions to your attention on the question of dating.

(i) Some scholars have emphasised, and many more have ignored, the fact that when Max Müller proposed 1500 B.C. as the time of the advent of the Aryans he meant it as a merely *provisional* dating. This is not to suggest that it may not be close to the mark and even such an eminent Indologist as Louis Renou (1962: 61) applauds it as a shrewd guess. It is, however, sobering in terms of chronological confidence to remind ourselves of Max Müller's own pronouncement in the matter.

(ii) The wisdom of his sense of caution on this point can be judged from some of the consequences which flow if the Ṛgveda is to be minimally placed in 1500 B.C. or even 1000 B.C.. As Ghosh points out:

> It is of course obvious that an Aryan-speaking population, who in course of time produced the Ṛgveda (and other works later) was in India long before 1000 B.C.. We say "*long before*", because a work like the Ṛgveda is not the first, but the final result of a long, uninterrupted, and homogeneous cultural life. Though nothing but a collection of hymns to the gods composed by several priestly families, the Ṛgveda clearly reflects the picture of a highly complex society in the full blaze of civilisation, ruled by constant warring petty princes, but dominated most potently by the priestly classes, through whose prayers the gods were persuaded to confer favours on the devout Aryans. Even literary culture had achieved a high degree of perfection already in the Ṛgvedic age, and had entered a stage that in modern parlance would be called "decadent", characterised as it is by a stolid adherence to convention. But it is in religion and cult that this spirit of decadence is most evident. The hymns to the gods, with few exceptions, are strangely stereotyped, and are mere adjuncts to ritual, which, in the eyes of the authors, was apparently more powerful than the gods themselves, whom it could compel to do the bidding of the sacrificers. It is quite clear that the Ṛgvedic culture, known to us from a work composed in a language of about 1000 B.C., had a long history behind it, buried in the past, of which there is no record. Ghosh (1958: 137).

The question is: did this prolonged period of gestation occur "inside" India or "outside" India? If it occurred inside India then the arrival of the Aryans will have to be placed several centuries earlier; and if it occurred outside India then we have to contend with the fact that (Ghosh 1958: 129) "there is not a single

passage in the vast Vedic literature to suggest clearly that Aryan India had ever any connection with the world outside." Attempts have been made to meet these objections. In the first case, if the date of the Ṛgveda is placed at 1000 B.C. rather than 1500 B.C. enough time for cultural evolution is allowed for. In the second case it is argued that during their movements the Aryans had little sense of moving into a new territory as we do - the lines they crossed were invisible lines - hence the sense of seamless geography. Both explanations have elements of plausibility but present problems. If we move the Ṛgveda to 1000 B.C. and still insist that Buddha died in 480 B.C. then the whole Vedic period is squeezed to five hundred years and not everyone is comfortable with that. The other option is to move the Buddha's date closer to the common era - to around 350 B.C. as Japanese scholars (cf. Bechert 1982) have been suggesting for a long time. This might provide a solution though it plays havoc with the chronology of the Buddhist councils, but that is a grey area anyway.

On the other hand, the detailed geographical description we do have in the Ṛgveda goes against the view that the Aryans had no sense of geography. However, although argument by silence is risky, we may recall Max Müller's observation that the Ṛgveda as we have it is "fragmentary" and we may just have the Indic fragment. Indeed he is known to have asserted that (Hiriyanna 1949: 10) "we have no right to suppose that we have even a hundredth part of the religious and popular poetry that existed during the Vedic age."

(iii) It is clear that Vedic chronology is in need of being re-ordered. For instance, the Bṛhadāraṇyaka Upaniṣad (4.6) provides over fifty links in the chain of *guru-śiśya-paramparā*.[1] It is regular academic practise to assign 25 years to one generational link. Fifty such links provide us with a total of about 1250 years. The Bṛhadāraṇyaka Upaniṣad is regarded as one of the earliest and usually assigned to the eighth century B.C.. If we work our way backwards through the *guru-paramparā* we are led virtually into the third millenium B.C. while the advent of the Aryans into India is regularly placed in the middle of the second millennium B.C.. I see some problems here.

7) The role of ritual in the context of the Vedic texts needs to be assessed with great care in the context of the Aryan problem. If Max Müller is right in suggesting that "we have no right to suppose that we have even a hundredth part of the religious and popular poetry that existed in the Vedic age," then the question arises: by what right may we suppose that we have what we have and not the rest? B.K. Ghosh raises a crucial point in this respect, which must be

[1] The fact, however, that Brahmā is mentioned as the original Guru may affect its credibility. The total number of links seems to be 57 to be more precise. Klaus K. Klostermaier (1989: 440) remarks: "The Guru-Paramparā, the succession of teachers, had to be memorised by each student as a legitimation of his knowledge. In the Bṛhadāraṇyaka Upaniṣad 4.6 sixty links in this chain of tradition are mentioned, going back through mythical figures to Brahmā, the creator himself, who revealed it".

stated at some length, beginning with a few straightforward statements about the Ṛgveda Saṁhitā, which the reader may skip but which I include here for the sake of completeness. He writes:

Of the various recensions of the Ṛgveda known in tradition only one, namely the Śākala recension, consisting of 1,017 hymns of very unequal length, has come down to us apparently complete, and it is this Śākala recension that is meant when one speaks of the "Ṛgveda", though we have parts of two other recensions of the Ṛgveda, namely the Vālakhilya (11 hymns, usually placed in the middle of the eighth maṇḍala of the Śākala recension) and the Bāṣkala (36 hymns in the Aundh edition of the Ṛgveda, the so-called Khila-Sūktas, most of which are evidently spurious fabrications, inserted at various places in the Śākala text). Why fragments - and only these fragments - of the Vālakhilya and Bāṣkala recensions have been handed down to us is quite clear: they have definite, though minor, roles to play in the ritual (as proved by later ritual texts in the case of some of them), and therefore had to be preserved. Originally the ritual varied not only from school to school but also from family to family, but later in the Ṛgvedic age a system of ritual with minor variations, generally recognised by all the principal schools and priestly families, had been built up, for which the texts collected in the Śākala school were accepted *en bloc*, but in which there always remained not a few loopholes provided by the continually expanding ritual, and these loopholes had to be stopped with Ṛk-mantras drawn sometimes from other recensions. (Ghosh 1965b: 229-230).

This prepares the ground for the following crucial observation:

Now, if the existing fragments of the non-Śākala recension of the Ṛk-Saṃhitā owe their survival apparently only to the fact that they were utilised in ritual by priests of the Śākala school - and indeed no other plausible reason can be suggested for the anomalous survival of these non-Śākala Ṛk-texts - then the important question arises: should not the preservation of the whole Śākala recension itself be attributed to the same cause? This question has doubtless to be answered in the affirmative. All the hymns accepted into the Saṁhitā must have possessed intrinsic ritual significance at the time of their acceptance.

Later, however, the ritual changed, and not a few of the hymns of the Saṁhitā in consequence lost their proper *viniyoga*, but not their position in the Saṁhitā which had become sacrosanct and therefore unassailable. (*Ibid*)[2]

He answers the question of whether the survival of the Ṛgveda Saṁhitā as we have it should be attributed to ritual use in the affirmative, in full awareness of the fact that (Ghosh 1965b: 241, note 4): "All the Vedic scholars, however, excepting Leopold von Schröder, who assigned a place in ritual even to the dialogue-hymns (*Mysterium und Mimus in Rigveda*, p. 36), have answered this question in the negative, though not all with equal emphasis."

One well-known Vedic scholar who does not accept this view is Louis Renou. He states (1957: 5): "The Ṛgveda was compiled in response to literary, or if it is preferred archaeological rather than liturgical needs. It is an anthology. It could almost be said without paradox that the work stands outside Vedic religion." These are strong words, perhaps too strong, for from the very next para-

2 Ghosh adds in a footnote (1965b: 241, note 4A): "It has to be remembered, however, that some special kinds of ritual formulas such as the Praisha and Nivid-mantras, though indispensable for ritual form the earliest period, have nowhere been collected in a Saṃhitā".

graph onwards Renou turns to a consideration of the liturgical aspect of the *Saṁhitā*:

With the description of the physical aspect of the god, and the usual series of entreaties, the hymns to Agni and to Soma combine a lyrical exposition, external to the ritual sequence, of the acts relative to the lighting of the fire, the oblation, the squeezing and the offering of Soma.

Others have a clearer purpose, going beyond the requirements of the Soma sacrifice, which is the principal object of the collection.

Thus the Apri propitiation hymns which were used (in a secondary place, according to Hertel) in the animal sacrifice; so also the verses on the horse sacrifice. There are also prayers having reference to domestic rituals, in particular a hymn for marriages (X.85), which starts out from the marriage of the sun and moon, the prototype of human marriages. There is a group of hymns relating to funerals and burial rites, forming a little Saṃhitā (X. 14-18).

More often the ritual prayers are included within a magical setting. It is the magical incantation which not only forms the basis of love charms, formulae of inauguration, and imprecations against evil spirits, but also the origin of some poems in which the artistic development conceals the original intention, such as the hymn to the frogs (which some have wrongly supposed to be satirical), which is nothing else than a charm for rain (VII. 103), or the hymn to the ruined gambler (X. 34), which is intended to free victim from the evil spirits in the dice. (Renou 1957: 5-6)

Even if it be argued that the ritual purpose is not the *sole* factor responsible for the compilation (Renou 1957: 6-7), can it be gainsaid that it is the primary factor? Renou himself states elsewhere (1970: 14): "Bergaigne has clearly shown that the entire Vedic mythology was reshaped and reoriented as a setting of Agni and Soma, and that all other divinities became counterparts or reflections of them".

Without wishing to enter into the classical myth-ritual controversy, the close connection between the two is apparent. If we now consider the further fact that if (Raja 1958: 201) "in the Ṛgveda the greater portion is of use in sacrifices," and "in the Yajurveda and the Sāmaveda the entire purpose is sacrificial" we begin to feel the full force of the argument.

The ritual aspect of the Ṛgvedic Saṁhitā may contain an important clue to the Aryan problem. The recognition of the significance of the centrality of Vedic ritual to the problem immediately starts having a bearing on crucial issues like the homeland of the Aryans. It may be used as an argument to support the Indian homeland idea as when it is pointed out that:

The sacrificial rituals had long been established before the compilation of the Saṁhitā. Therefore the home of Soma, the Munjavant or Munjavant hills in the north of the Panjāb indicates the locality from which the sacrificial rituals developed. (Shastri 1965: 221)

However, if it is argued that the other major god "Agni, the god of fire, who is represented as carrier of gifts to the gods, belongs to a period anterior to the occupation of India by the Aryans", then the argument can go the other way. The point to note is how the complexion of the arguments is affected, not that the issue is necessarily resolved.

It is impossible to overemphasise this point. Even if we doubt the liturgical motive behind the *compilation* of the Ṛgveda Saṁhitā, can one question the ritual motive behind its meticulous preservation? This fact becomes even more significant in the light of the fact that (Renou 1957: 3) "Tradition ... attributes to Śākalya the origin of the padapāṭha, "recitation by word" , which presents the text in isolated words, to the neglect of rules of euphony". Renou (1957: 8) goes on to say of the Ṛgvedic text that, "From the moment it was given final form, the text was preserved with extraordinary fidelity. Supported by the pada recitation and by the more complex methods of recitation which were added to it, preserved by the rigorous phonetic description of which the tradition is set forth in the Rikpratishakya, the Ṛgveda has come down to us in the same state in which the compilers codified it, without an alteration, without a variant." The question naturally arises: why was the text preserved with "extraordinary fidelity"? It is well known that the reason is liturgical, as any deviation vitiated the ritual (Kane 1974: 347).

8) The discussion of the Aryan question in modern Indology is marked by an internal tension which seems to have gone unrecognised. This tension is generated by an attempt to assign the Ṛgveda to 1000 B.C. on the one hand, and to argue that traditional Hindu material is largely irrelevant in trying to understand it on the other. Let me first document this latter sentiment:

The interpretation of the Ṛgveda to Indian views rests primarily on the elements of commentary contained in the Brāhmaṇas on the Nirukta and then on the series of Bhāṣya, "commentaries" (literally "oral texts"), which were compiled in the Middle Ages: those of Mādhava, Skandasvāmin, Venkatamādhava, and best known though certainly not the best, that of Sāyaṇa, a southern Brahman, in the XIVth century.. The tradition has been revived in the XIXth century, with the neo-Vedic movement. None of these commentaries should be neglected: they rest in part on ancient traditions, and it would be superficial to reject the authority of Sāyaṇa on the pretext that he presents a mass of naive explanations, contradictions and bad etymologies. What it is nevertheless permissible to doubt is whether they reflect the thought of the hymns: we discern in them too many anachronisms, too much Hinduisation. Despite the reaction marked by Pischel and the *Vedische Studien, progress in the interpretation of the Ṛgveda is made most often by disregarding the indigenous glosses. This progress has been the work of western science: the first impetus was given by the teaching of Eugene Burnouf, and down to our own day an uninterrupted series of scholars have continued the interpretation of the text, which remains the most difficult which has come down to us from ancient India. The work involves comparative study of the data on ritual, the results of comparative grammar, mythology, ethnology, and the study of the Avesta.* Translations, lexicons and commentaries have multiplied. But numerous passages remain as obscure as ever, either because the meanings of important words are unknown, or because meaningless rhetoric - though this is sometimes too easily blamed - has masked the real thought. (Renou 1957: 8-9; diacritics supplied)

The closer one brings the Ṛgveda to the beginning of the common era, however, the more one narrows the gap between early ancient Indian exegesis and the Ṛgveda itself, thereby increasing the probability of traditional explanations coinciding with the original understanding. The comparative study of the

Avesta is significant here. B.K. Ghosh (1965a: 208) places the Ṛgveda around 1000 B.C. "admitting, however, that the culture it represented must be considerably older". Louis Renou, however, does not feel comfortable on this point. Regarding the 16th-15th centuries B.C. as the proposed date for the Ṛgveda, he writes (Renou 1957: 11): "On the other hand the close relation of the Ṛgveda with the Avesta inclines us to bring the date lower (with Hertel), if at least we were sure that the Avestic *gathas*, so similar in form to the Veda, were not earlier than the sixth or seventh century. However, in addition to the fact that this date is very uncertain, it is quite sure that the development of the Vedic literature requires a far longer time than this allows."

A second source of internal tension lies in conflating the date of the *compilation* of the hymns with the date of their *composition*. Even a scholar of the stature of Louis Renou seems to trip, at least at one place, on this point. He writes (1957: 10): "Now if it be assumed that the entry of the Aryans took place about the 16th-15th century B.C. the hymns must be placed about this date." The statement is ambiguous - must their *composition* be placed around that date or must their *compilation* be placed around that date? It is clear elsewhere that he means the text, as when he says (Renou 1962: 22): "This text, which may be dated from the second millenium B.C., is the most ancient literary document of India and one of the most ancient of the Indo-European world." If, however, the advent of the Aryans coincides with the compilation of the Ṛgveda what are we to make of the distinction - and the interval which lapsed between the composition and the compilation - which Renou himself acknowledges as follows:

> Calculations of relative chronology alone can be made: the Ṛgveda is older than all the other Vedic texts because it does not presuppose any of them, all the others more or less directly presuppose it. It may be considerably earlier, at least in relation to the prose texts (though this has been doubted, as by Chattopadhyaya), since the archaic character which separates the Ṛgveda from later literature can hardly be accounted for by simple differences of style or level of social evolution. If the compilation of the Ṛgveda took place at a time near the Brāhmaṇas, the composition of the hymns was very much earlier. When was it? (Renou 1957: 10, diacritics supplied)

There are two aspects of the problem. The less the time allowed between composition and compilation, the more difficult it is to allow for internal development on the one hand and for the loss of memory of the original homeland, as migrating races look back to the land of their origin for centuries. On the other hand, the more one stretches the period the closer one gets to the presumably non-Vedic Indus Valley period.

9) It is one of the unquestioned presuppositions of Indology that the Vedic literature "was composed as a whole before the Buddhist doctrine was preached" (Renou 1957: 10), and the whole is believed to include the Saṁhitā, Brāhmaṇa, Āraṇyaka and Upaniṣad subdivisions (Hiriyanna 1949: 9). However, according to N. Dutt:

In the earliest Buddhist literature (i.e. Pāli) there is no reference to the *Brāhmaṇas* and other ritual-literatures nor the *Upaniṣads*, though there is mention of the *Ṛk*, *Sāma* and *Yajur* Vedas and of the four *śākhās: Bahvarija* (Bahvṛca), *Addhariyā* (Adhvaryu), *Tittiriyā* (Taittirīya) and *Chandokā* (Chāndogya). There are also references to the four kinds of sacrifices: *assamedha, purisamedha, vājapeya*, and *samyāpāsa* as well as to the Vedic seers, viz., Aṭṭhaka, Vāmaka, Vāmadeva, Vessāmitta, Yamataggi, Aṅgirasa, Bhāradvāja, Vāseṭṭha, Kassapa and Bhagu, with the observation that these seers were merely hymn-composers with limited knowledge and had not visualised the highest god Brahmā and hence the Vedic hymns were not revelations. These references prove that the composers of the Pāli *Suttantas* were more conversant with the three Vedas than with the subsequent ritualistic and philosophical literatures. (Dutt 1960: 1-2)[3]

There is the further fact that the word *brahman* is not found in the Pāli canon as distinguished from *brahmā*, a fact noted early on by H. Oldenberg and to my mind never satisfactorily explained. As Oldenberg pointed out:

It is significant that, although the speculations of the Upaniṣads regarding the Ātman and the Brahman must, in Buddha's time, have been long since propounded, and must have become part of the standing property of the students of the Vedas, the Buddhist texts never enter into them, not even polemically. The Brahman, as the universal One, is not alluded to by the Buddhists, either as an element of an alien or of their own creed, though they very frequently mention the god Brahmā. (Oldenberg 1882: 64; see also Jayatilleke 1975: 126; and Rahula 1974: 59)

We overlook the importance of such considerations at our own peril. I am not suggesting that we abandon the existing chronology on the basis of this single consideration, should it turn out to be unimpeachable; I am suggesting the need for vigilance in this respect. Let me, for instance, share with you another consideration which I owe to Professor A.L. Herman, that the Pāli canon does not seem to refer to the concept of the three *guṇas* which is such a salient feature of Sāṅkhya, a system sometimes associated with Buddhism. Buddha was born in "the place of Kapila" (Kapilavāstu), who is acknowledged as the founder of the system, and his first spiritual mentor - Ārāḍa Kālāma - is said to have been a teacher of Sāṅkhya (Thomas 1971: 77-81). It could well be that the doctrine of the three *guṇas* became part and parcel of Sāṅkhya at a later date. The point I wish to draw attention to is that this consideration, if correct, has hitherto *not been taken into account* in this context to the best of my knowledge. There are these sorts of broad general considerations which I feel tend to get over-

[3] Dutt provides the following notes and references (1960: 1, note 1): "1 *Dīgha* I, pp. 104, 237, 240; *Majjhima* III, p. 200; *Addhariyā* refers to White Yajurveda; *Tittiriyā* to Black Yajurveda; *Chandokā* to Sāmaveda: and *Bahvarija* to Ṛgveda."; and (1960: 2, note 1): "1 *Dīgha* I, pp. 104, 201; *Majjhima* II, p. 200; *mantānaṁ kattāro mantānaṁ pavattāro*. Of these names three are found in the *Ṛgveda*: Vāmadeva as the composer of the 4th Maṇḍala, Bhāradvāja of the 6th and Vāseṭṭha of the 7th. The rest are well known names of the *Brāhmaṇas* and *Śrautasūtras*. Aṭṭhaka is found in the Aitareya Brāhmaṇa (7.17) and the *Śāṅkhāyana Śrautasūtra* (15.26) as one of the sons of Viśvāmitra. Vāmaka and Bhagu appear as teachers and sages in the *Śatapatha Brāhmaṇa* (10.6.5.9 and 7.2.1.11), while Yamataggi (Jāmadagni) is well known as the rival of Vasiṣṭha. Aṅgirasa is mentioned as a teacher in the *Taittirīya Saṃhitā* (3.1.7.3; 7.1.4.1)".

looked in the minutiae of specialised research and we owe it to ourselves not to lose sight of them.

This discussion may now be brought to a close. I would like to emphasise, as I do so, that the exercise I have undertaken should not be misunderstood. I am particularly keen that it should not be understood in the following two ways: (1) That I subscribe to all the views I have cited. In fact, I have often cited conflicting views so perhaps the danger of this exercise generating such a misunderstanding is not as great as I imagine. Nevertheless I feel the need to state that my use of the material cited is illustrative and not probative. (2) That I am attempting a Derridaian deconstruction of Vedic studies because I am not. I am, however, in agreement with Derrida on one point (Spivak 1990: 46): "Derrida said, at a certain point - I don't think this is in print - "Deconstruction is not exposure of error, it is a vigilance about the fact that we are always obliged to produce truth". With this point I am in agreement, as perhaps all of us are.

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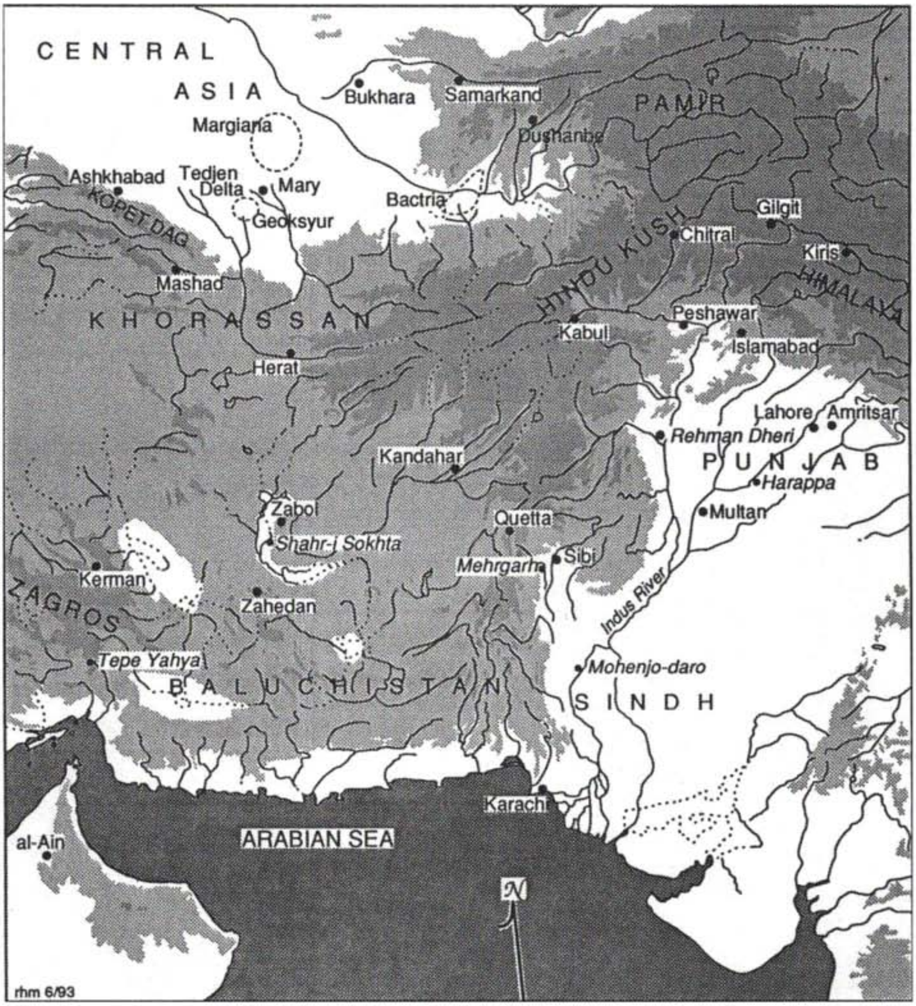
Fredrik T. Hiebert

8. South Asia from a Central Asian perspective

Recent collaborative archaeological research in Central Asia provides a new chronological basis for the study of interaction between South Asia and Central Asia. Until now, the Bronze Age cultures of Central Asia have been studied by Soviet and Western archaeologists according to separate chronological frameworks which have been difficult to reconcile. The new Central Asian chronology is based upon a series of radiocarbon dates which allows us to place specific regional chronologies in a framework comparable to the radiocarbon sequences of its neighbors.

The refined chronology has, significantly, placed into context Bronze Age funerary deposits found in the Iranian Plateau, at Khurab and Shahdad, which contain ceramics and small finds typical of Central Asia and clearly distinct from local archaeological materials (first reported by Stein 1937). These artefacts belong to the late Bronze Age culture of the oases of Bactria and Margiana, the loci of a well described assemblage called the "Bactria-Margiana Archaeological Complex (BMAC)," dating to 1900-1700 B.C. (Hiebert 1992a). The identification of the *intrusive* BMAC burials has suggested a movement of population from Central Asia into an area of towns and cites on the Iranian plateau (Hiebert and Lamberg-Karlovsky 1992). The lack of imported objects, in addition, into the oases of Bactria and Margiana at this time strongly indicates the unidirectionality of this movement. However, the presence of these burials does not indicate massive migration, since these tombs and cenotaphs outside Central Asia are intermittently dispersed and continuity of occupation in the oases of Central Asia is confirmed. As previously suggested (Hiebert and Lamberg-Karlovsky 1992) and discussed in this volume (by Erdosy in Chapter 1), the appearance of the Central Asian peoples on the Iranian plateau for this brief period at the beginning of the second millennium B.C. is the best candidate for an archaeological correlate of the introduction of Indo-Iranian speakers to Iran and South Asia.

The archaeological situation on the Baluchistan side of the Indo-Iranian borderlands is, in part, analogous to the situation observed in eastern Iran. J.F. Jarrige and M. Santoni have uncovered a series of funerary deposits at Mehrgarh, Sibri, and Quetta which contain an almost identical assemblage of ceramics



Central Asia, The Greater Indus Valley, and Baluchistan. Contours at 500 and 2000 m. Names of archaeological sites in italics.

and small finds to what was found in the "Central Asian" tombs in eastern Iran (Santoni 1984; Jarrige 1985; Jarrige 1988; Santoni 1988; Jarrige and Hassan 1989). R. Besenval (pers. comm.) has likewise found isolated Central Asian artefacts in the Makran, of a distinctly Bactrian-Margiana type. Finally, the seal or amulet, which Gordon Childe published in *New Light on the Most Ancient East* (Childe 1953), and which he calls Harappan, is typical of the amulet seals which were being produced in Margiana and Bactria.[1]

These Central Asian funerary deposits and occasional finds are less differentiated from the local South Asian archaeological context than analogous Central Asian materials in Iran. At Nausharo on the Kachi plain of Baluchistan, the local ceramic forms and wares are similar to the Central Asian ceramics, suggesting a more complex interaction between these two areas than has been previously suggested (Jarrige 1990). There is little doubt but that this interaction between Central Asia (southern Turkmenistan [Western, Central and Eastern foothill regions of the Kopet Dag], Margiana, Northern Bactria, and Southern Bactria) and South Asia (Helmand, Baluchistan and the southern Indus Valley) was, in fact, part of a long, continuous development. In this paper I propose to isolate the various stages of this interaction and to identify the mechanisms responsible for them, pointing out also significant parallels in the evolution of complex societies in the two areas. I shall conclude with a detailed survey of the developments of the early second millennium B.C., marked by the expansion of the Bactria-Margiana Archaeological Complex into both Iran and the Borderlands of the Indus Valley.

Central Asian Geographical Regions

I shall begin with a brief discussion of geography. "Central Asia" - the region north of the Iranian Plateau extending from the Caspian Sea to the Pamir range - is comprised of mountains, foothill regions, river valleys and desert oases. This diversity must be kept in mind as it is vitally important to identify the regional traditions in Central Asia, instead of simply relying on the unified chronological framework called the "Namazga sequence", defined from the excavations at Namazga Depe in the 1940s (Litvinsky 1952; Masson 1956). I base the regional chronologies in Central Asia upon the stratigraphic sequences from Geoksyur (Sarianidi 1961), Altyn (Masson 1988) and Anau (Kurbansakhatov 1987; Hiebert and Kurbansakhatov 1993) and upon various excavations in Margiana and Bactria (Hiebert 1992a). These "traditions" can now placed in a comparative regional framework, together with the South Asian regional traditions as defined

[1]Its actual context is in the upper levels of Harappa, not Moenjo Daro, as suggested by Childe.

by Kenoyer (1991) and Shaffer (1991) using calibrated radiocarbon dates (for Central Asia: Kohl 1984; Hiebert 1993; for South Asia: Possehl 1990; Kenoyer 1991). The following discussion will be broken down into distinct chronological phases, but before proceeding, the overall regional framework must be presented (Figure 1).

3500-2700 B.C.

Settlements based upon dry farming date from the seventh millennium B.C. in several regions (Western, Central and Eastern) along the foot of the Kopet Dag mountains of southern Turkmenistan (Masson and Harris 1992; Kohl 1984). By 3500 B.C. these areas see the emergence of clearly differentiated cultural traditions. In the Western (Anau and Ak depe) and Central areas (Kara, Namazga), small finds and architecture continue the long tradition of the early agricultural village culture, and appear to be more similar to objects from sites on the Iranian plateau than to those from sites of the eastern zone of Geoksyur. The painted zoomorphic designs on the ceramics of the Central area of the Kopet Dag, in particular, are very similar to those in Hissar IB, Hissar IIA, Sialk III_{4-7} and Sialk IV, and generally compare with the traditions on the Iranian plateau (Lamberg-Karlovsky 1986).

The earliest Geoksyur settlements are an extension of the Eastern Kopet Dag settlements of the Namazga II tradition. However, innovations during the late fourth millennium B.C. (representing the Geoksyur culture) were quite different from those of the evolving Namazga sequence, with new forms of burials, architecture and geometric painted motifs on ceramics. These appeared at the same time as an expansion of settlement in the Geoksyur area occurred along with incorporation into a large interaction area to the south.

Many new features in the Geoksyur culture sites from 3500-2700 B.C. are shared with South Asian sites, including the earlier Mehrgarh III levels. However, this should not be taken to indicate the contemporaneity of Mehrgarh III with the Geoksyur levels. Furthermore, Fairservis (1975), Kenoyer (1991), and Shaffer (1991) have shown that the fourth millennium B.C. cultures in Baluchistan and the Greater Indus Valley are the products of local development. Hence, similarities between the new Geoksyur ceramic motifs and the older ceramic traditions in Baluchistan suggest that traditional South Asian cultural features were incorporated into the Central Asian Geoksyur material culture. These features include aspects of ideology (reflected in the decorative symbols), new forms of social organisation (reflected in the burial patterns and figurines) and new technology (reflected in the production of ceramics and small finds). On the whole, the Balakot, Amri and Hakra phase sites in the Indus valley, Mehrgarh IV-V in Baluchistan and Shahr-i Sokhta in the Helmand region formed a

	Indus valley Tradition	Baluchistan Tradition	Helmand Tradition	Margiana desert oasis Tradition	Bactria desert oasis Tradition	Eastern Kopet Dag Tradition	Central Kopet Dag Tradition	Western Kopet Dag Tradition
Early Food Producing Era	Mehrgarh phase	Mehrgarh I-III	Ghar-i-mar phase	—	—	Ilgynly I-II	Namazga I-II	Anau Ia, Ib, II
3500-2700 BC	Balakot, Amri, Hakra and Kot Diji phases*	Kechi Beg, Nal, Damb Sadaat phases* Mehrgarh IV-V	Mundigak, and Balakot phases*	Geoksyur campsites	—	Geoksyur	Namazga III-IV	Anau III
2700-2200 BC	Harappan phase**	Kulli phase** Mehrgarh VI-VII Nausharo II/III	Shahr-i-sokhta II-III**	—	—	Altyn-depe (Exc 1) 3-8	Namazga IV-V	
2200-1900 BC	Late Mature Harappan phase**	Nausharo IV**	?	Late Namazga V	—	Altyn-depe (Exc 1) 0-2	Late Namazga V	
1900-1700 BC	Jhukar phase***	Mehrgarh VIII***	Seistan phase***	BMAC	BMAC	BMAC burials	Namazga VI	
1700-1500 BC	?	Pirak phase	?	Takhirbai period	Molali period	?	Late Namazga VI	Anau IVa

Figure 1: Chronological table of Central Asian and South Asian Cultural Traditions (cf. Shaffer 1992)[1]

1 * = Regionalisation Era ** = Integration Era *** = Localisation Era

complex network of interacting areas which appears to have extended to Geoksyur. Parallels with Geoksyur have also been found at the sites of Damb Sadaat (II-III - Fairservis 1956), Mundigak (III_6 and IV - Casal 1961), and Gumla (II - Dani 1971). They include, once again, ceramic shapes, decorative motifs, certain types of bent figurines, collective burials, and types of ceramic production areas, that is, kilns. Geoksyur ceramics, although hand-made, have a distinctive carination which appears to be imitative of wheelmade ceramics, such as many of the Quetta wares.

There are few actual trade items to suggest "major trade/exchange routes" with the Indus Valley tradition. Faiz Mohammad greyware has not been identified in Central Asia although it circulated in other areas of South Asia. In contrast, exotic raw materials were recovered from several Geoksyur sites (Sarianidi 1961, Khlopin 1964) suggesting an increase in raw material imports from source areas in Afghanistan and Baluchistan. Lisitsina identified dwarf barley, a grain type also adopted in South Asia, from a late Namazga III context from the Geoksyur site of Chagylly-depe, and from early Namazga IV levels at Ak-depe and Altyn depe (Lisitisina 1992). The interaction appears, thus, to have been limited to raw material procurement and to the sharing of specific ceramic shapes and decorative motifs, without an exchange of ceramics themselves. The latter was evidenced only at Sarazm, at the northeastern extremity of the local Geoksyur interaction network, near modern Samarkand (Isakov and Lyonnet 1988), going against the grain of the general pattern of interactions between Central and South Asia.

While finished objects were not exchanged, the similarities of ceramic styles and figurines, similar traditions of production, and even similarities in ideological constructs suggest strongly a widespread and complex nexus stretching from Geoksyur in the Kopet Dag foothills to the Makran coast of the Indian Ocean. These shared cultural features, found both in South Asia and Geoksyur, provide the basis for the parallels in material cultural between the Central Asian cultures and the cultures of the Greater Indus Valley for the next one-thousand years.

2700-2200 B.C.

In the Central and Eastern zones of the Kopet Dag foothills, sites such as Altyn, Ulug and Namazga depe grew in size and complexity. During the third millennium at Altyn depe, levels 3-8, and at Namazga, period IV, the following features of foothill sites are first documented: specialised production areas (Masimov 1970; Masimov 1976), fortifications on the outer perimeter of the settlements (Masson 1968), and status differentiation of individuals in burials (Alyekshin 1979; Masson 1981). These factors indicate the development of complex

social, economic and political organisation (or "state level" society - Kohl 1984).

By 2700 B.C., the Geoksyur sites were abandoned, except for the isolated site of Khapuz depe (Masson and Sarianidi 1972). Long distance interaction between the Upper Zerafshan and the foothill zone ceased after the Geoksyur period, but sites in both areas continued to be occupied (Besenval and Isakov 1989). The lack of ceramic parallels or of imported objects from Baluchistan, the Iranian plateau, Seistan and other distant regions suggests a much reduced interaction network. In the foothill zone, the increase in the number of sites probably reflects the incorporation of the former Geoksyur population. This proposal is supported by excavations from the eastern foothill zone at Ilgynly depe (Masson and Korobkova 1989). The complex stratigraphy reveals specific Geoksyur features intrusive into the local culture which are later *assimilated* into the late Namazga IV culture of the foothill zone.

By the mid-third millennium, the types and forms of ceramics, seals, figurines, tokens, etc., reflect the consolidation of the Geoksyur and earlier Namazga traditions. Two-part carinated vessels, handmade in the Geoksyur tradition in imitation of South Asian wheelmade ceramics afford one example. Similar carinated forms, made on a fast wheel, became common during Namazga IV. These wheelmade forms reflect a manufacturing technique, originating in the foothill zone, which lasted until the end of the Bronze Age in Central Asia.

The wheelmade ceramics of the third and early second millennia throughout Central Asia (including the Bactrian and Margiana Bronze age oases areas) shared some overall forms: vases on pedestal bases, trumpet shaped cups, large closed pots with a moulded concave base, and so on. Some of these have parallels in South Asian forms, including vessels on tall stands, perforated cylinders, and large two-part vessels with a concave base (Shchetenko 1970). Ceramic "pot-stands" appear to be used both for the manufacture of the concave base of the large closed pots, and also as the stands for these vessels in both Harappan and Namazga ceramic assemblages. In both regions, however, these ceramic forms have local antecedents, which in the case of Central Asia go back to Geoksyur. The method of ceramic production and the similarity in kiln form in the two areas suggest similar production techniques to those found in the Indus Valley tradition (pre-2700 B.C.).

The similarities are not indicative of the level of interaction at that time. No Harappan black-on-red decorated ceramics have been found in either late Namazga IV or early Namazga V assemblages. In fact, *unpainted* fast wheel ceramics became typical from the early Namazga V period in the Central and Eastern foothill zones of the Kopet Dag. The distinctive wheel made ceramics homologous to South Asian forms continue in the desert oasis cultures, including the BMAC.

Bronze implements have been suggested as indicators of the level of interaction in Indus Valley-Kopet Dag connections (Shaffer 1982). Gupta (1979)

suggests that bronze implements in Central Asia reflect long distance exchange during this period, on the basis that in Central Asia metal artefacts were rare and copper not locally available. However, numerous copper artefacts with a distinctive Central Asian style have been found in the Kopet Dag foothill sites from the beginning of settled life in Turkmenistan (Pumpelly 1908; Chernykh 1992). Central Asian Bronze age sites, in fact, often have metal smelting and processing areas, and copper resources located in the Kopet Dag and Paropamisus mountains were readily available to them (Hiebert and Killick 1993).

Very few finished imports are found in Central Asia, and there is little evidence of an emphasis on long distance trade contacts. Periods 1 and 2 at Shortugaï, on the eastern edge of the Amu Darya basin in Central Asia, were contemporary with the Mature Harappan - or Integration Era (Shaffer 1992) - phase (2600-2200 B.C.). This site has been interpreted as a Harappan outpost, the closest Harappan site to the cities of the Kopet Dag (Francfort 1989). Yet, no Namazga IV-V ceramics have been found at Shortugaï, and no Harappan ceramics in the foothill sites of the Kopet Dag. Further, no deposits of this time period have been identified in the sites of the desert oases of Bactria and Margiana, located between Shortugaï and the eastern foothill zone (eg. Khapuz depe).

Analyses of the patterns of external trade during the Mature Harappan period have generally concluded that the evidence for it is almost negligible during the time of state formation (Shaffer 1982). Few imported artefacts from Mesopotamia, Iran, or Central Asia can be documented in this time period from a major Harappan site. In neither South Asia nor Central Asia is the period of rapidly increasing social complexity ("state formation") accompanied by expansion in long distance trade. While there are several areas with documented long distance trade with the Harappan, these cases belong to the late Mature Harappan period.

2200-2000 B.C.

By the late Namazga V period, around 2200 B.C., there was a shift in settlement in the foothill zone, where population at the urban sites became more dense, and an expansion into the desert oasis of Margiana. The eastern foothill zone sites of Ulug and Altyn depe, the Altyn 0-3 levels, are by far the most extensive occupations and suggest a population density much higher than earlier in the third millennium. At this time, a widespread area in the delta of the Murghab (Margiana) is settled for the first time, and the assemblage of ceramics and small finds is practically indistinguishable from the eastern foothill zone. Excavations at the earliest sites at Kelleli (Masimov 1979), Gonur (Sarianidi 1989) and Togolok 1 (Sarianidi 1981), suggest that occupation was based upon the establishment of a complex irrigation system. While the culture appears very similar to the late

Namazga V culture (Altyn 0-3), compared to the foothill zone there are few imports, if any, from areas outside Central Asia itself.

Large scale excavations at sites in the foothill zone have uncovered several Harappan or Harappan-like objects (Masson 1977; Masson (ed.) 1984; Shchetenko 1970). In the uppermost levels, 0-3, at Altyn depe were found several small seals, beads and ivory sticks which appear to be trade items, and if not made in the Indus Valley, they are of a type at least foreign to the Central Asian traditions. Overall, however, the Harappan world had little direct impact on the material culture of the late Namazga IV-Namazga V periods through exchange or cultural interaction, in spite of the proximity of its northernmost outpost at Shortugaï. Undoubtedly, further analysis of the materials involved in exchange will be necessary, as well as excavation strategies that produce quantifiable data, in order to obtain results comparable with South Asia and the Near East. Nevertheless, the preliminarily impression is that interaction with Central Asia fits the pattern of Harappan exchange with Iran (Shaffer 1982) and the Persian Gulf (Beyer 1990), where Gulf seals and Indus weights are typically only found in contexts later than 2200 B.C.. Both Central Asian and South Asian regions appear to be focussed internally on the development of social and political complexity. The similarities between these areas are primarily due to the incorporation of South Asian traditions during the earlier Geoksyur culture of Central Asia. Later, these traditions were incorporated into the Central Asian foothill and desert oasis cultures.

2000-1750 B.C.. The emergence of the Bactria-Margiana Archaeological Complex

In Central Asia the period from 2000-1750 B.C. was a time of tremendous change. The oasis colonies in the desert of Margiana, first formed from the "late Namazga V" foothill culture, gave rise to a distinctive culture, known as the Bactria-Margiana Archaeological Complex, or "BMAC" (Sarianidi 1990 etc.).

The date of the development of the BMAC in Margiana is only definable from a series of radiocarbon dates, and it has only been possible to distinguish first and second period sites in Margiana according to a refined chronology (Hiebert and Moore 1993). Late Namazga V and BMAC ceramics in Margiana can be differentiated only by subtle variations in undecorated forms, indicating continuity of the local population. It is at this time that settlements were established in the oases of north and south Bactria for the first time, with a set of small objects, ceramics and architectural forms almost indistinguishable from that of the developed BMAC culture of Margiana.

The distinctive administrative and ceremonial objects of the Bactria-Mar-

giana Archaeological Complex reflect the development of a new type of social structure within an ongoing culture, rather than migration or invasion. Taken together, the elite and ceremonial architecture and the artefact assemblages can most closely be compared to later fortified farmsteads (*qalas*) of wealthy landlords (*khans*). The establishment of a "khanate" produces many archaeological attributes of state level society, but not urbanism (Hiebert 1992b). This development in Margiana represents the legitimisation of political hegenomy within the oasis itself, separately from the foothill cultures. The development of the new politico-economic form may have been accompanied by a new linguistic form as expressed in the new motifs found on BMAC seals, amulets and small metal objects which are similar to later Indo-Iranian motifs.

The expansion of the Bactria-Margiana Archaeological Complex

The elite objects of the BMAC included steatite flacons, steatite stamp seals and *série récente* bowls. On many Bactrian and Margiana sites are found artefacts made of exotic materials in various states of completion - even some of the miniature columns found at Togolok-21 appear unfinished. Metal production is attested to in Margiana by the occurrence of a metal ingot excavated at Gonur from a BMAC context, and by a cast for metal working in the form of an eagle. These pieces are all of the distinctive BMAC style and suggest that raw materials were being imported to the oases of Margiana and Bactria to produce these items locally, and in large quantities.

The burial assemblages with typical Central Asian BMAC style artefacts, ceramics and burial type identified on the Iranian plateau most likely reflect movements of people from Central Asia to the south. This situation is also found on the western borders of the Indus Valley; for example, the burials from Quetta (the Quetta Hoard - Jarrige and Hasan 1989) and Sibri (Santoni 1984). Cenotaphs found in Mehrgarh VIII and at Sibri are also typical of the BMAC period in Margiana and Bactria and together with the Central Asian burials indicate the presence of Central Asian people on the edge of the Indus Valley. These assemblages at Mehrgarh VIII, Sibri and Quetta date to 1900-1700 B.C. on the basis of the Central Asian finds. The process of expansion from Central Asia - an organised military venture, perhaps? - remains unclear; the possibility of finding actual BMAC sites to the south, in addition to burials, must still be entertained. What we know presently is that siginificant quantities of raw or semi-finished materials from Baluchistan and the IndoIranian borderlands (marble, granite, lapis, carnelian, steatite, alabaster, shell (from the Indian Ocean), copper, and copper-tin alloy) appear at BMAC sites in Central Asia, to counter the flow of BMAC artefacts to the south, while at the same time no *finished* products from the Indus regions are found there.

The spread of the BMAC to South Asia may have also been accompanied by a new type of social structure, of *qalas* and *khans*, which had lasting impact on the populations of Baluchistan and the Indus Valley. It is, thus, tempting to see the spread of BMAC material culture to Iran and South Asia as signifying diffusion of a new type of politico-economic structure, and of a new language - or languages - carried by a small group(s) of people, and adopted by the local populations.

Isolated finds of BMAC seals, miniature columns, and steatite vessels of the Central Asian *série récente* variant reflect a different distribution pattern from that suggested for BMAC burials at Khurab, Shahdad, Quetta and Mehrgarh. These finds represent a second type of interaction between Central Asia and South Asia, which appears to be part of an older system involving the large interaction spheres formed in the fourth millennium.

Conclusions

The eastern foothills of the Kopet Dag (the Geoksyur region) and South Asia were closely connected during the end of the fourth and the beginning of the third millennium B.C.. These connections led to shared similarities in many cultural traits between them. The extent of these ties lessened throughout the third millennium, although technological traditions developed in a similar fashion in both areas, now developing urbanism.

Subsequently, political complexity in Central Asia and the Indus Valley evolved in similar ways: large, nucleated settlements, highly complex production systems and monumental architecture of an urban nature in both areas imply a state level society. In both cases, also, the urban settlements were short-lived and were superseded by a different, non-urban, settlement organisation. While these processes of state formation appear to be parallel, however, the large and complex sites of Central Asia, which developed along the Kopet Dag foothills, attained their maximum extent and complexity later than did the Indus Valley sites. The largest sites of this period in the foothill region were located in an area that had limited water supply and agricultural potential.

The material culture of the early occupation of Margiana is very similar to that of the foothill zone of southern Turkmenistan during the period of urban development, supporting the view that initial colonisation was accomplished by settlers from the foothill zone. The settlement pattern of these colonies was distinct from the foothills, however; they were dominated by large agricultural manors, spaced along the branches of canals in a broad network of single-building sites spread around the oasis. This early oasis adaptation appears first in Margiana, but during 1900-1700 B.C. we see its expansion from the oases of both Bactria and Margiana, indicating the movement of people to the periphery

of the Indus Valley, and of artefacts even further. The change in settlement organisation in the post-Harappan period of the Indus Valley borderlands may reflect the adoption of the "khanate" structure from Central Asia, with characteristically large fortified buildings (*qala* and *keshk*). This process was apparently associated with the introduction of new (Indo-Iranian) languages as well.

In conclusion, if we approach the phenomenon of the expansion of BMAC traits as the adoption of a complex of political, economic and linguistic structures in the Indus Valley, then we should focus our attention on the growth of the power of landlords and a shift away from urbanism. We should search for evidence of the development of smaller, dispersed settlements, and look for assemblages of pottery and small finds which functionally match the BMAC, rather than assume direct imports or grope for evidence of massive population movements. Now that linguists are moving away from models of cataclysmic invasions responsible for the spread of Indo-Aryan languages, archaeologists must also try to present more realistic models for the crucial transitory period of the early second millennium B.C. in South Asia.

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9. Central Asia and the Ṛgveda: The archaeological evidence

The *puruṣa-sūkta* of the Ṛgveda (10.90) contains an account of a divine sacrifice in which food is the basis of the growth of primordial man, *puruṣa*, the sacrificial dismemberment of whom results in the division of society into *varṇas*. The Ṛgveda, as a whole, describes a fundamentally pastoral culture, in which class division rooted in the *varṇa*-system marks society. However, Central Asian pastoral societies are, and were, characterised by a joint family and correlative segmented lineages within the clan or *obok* social structures. There is often marked flexibility in determining or marking kin, sodality or tribal memberships. The fact is, that class-divisions are generally uncharacteristic of Central Asian pastoral societies. It appears, then, that the *puruṣa-sūkta* account does not spring from a Central Asian pastoral ethos, whatever the allusions of the Ṛgveda.[1]

A recent paper by F.T. Hiebert and C.C. Lamberg-Karlovsky (1992) describes a Central Asian Bronze Age civilisation evidenced in Bactria and Margiana, but with ties to southern Turkmenistan, which flourished in the late 3rd-early 2nd millennia BC. This civilisation, while lacking in writing, had a rich material culture including compartmented seals and a sophisticated graphemic system short of proper writing. Its influences were widespread, and in the case of the Indo-Iranian Borderlands included southern Afghanistan, the Quetta region and southeastern Iran. If we consider the Ṛgveda account as describing a culture combining pastoralism, limited agriculture and a socio-political system not markedly typical of Central Asian pastoral societies, it is to this Central Asian Bronze Age civilisation, commonly termed the Bactria-Margiana Archaeological Complex or BMAC (Sarianidi 1990; Hiebert and Lamberg-Karlovsky 1992), that we must turn if we are to recover evidence for its genesis.

Altyn Depe in Turkmenistan lies in the piedmont of the Kopet Dagh (Masson 1981). It boasts of a high mound, extending over 125 acres, and reaching to a height of about 100 feet. It is one of the most extensively excavated

[1] References to the Ṛgveda are from the translations of Wendy Doniger O'Flaherty (1981). Central Asian social structure is described by, among others, E.E. Bacon (1958).

sites in Central Asia, and represents a continuous occupation by sedentary farmers from about 4000 BC to its urban phase around 2300 BC. Its development is parallel to the evolution of village farming, well-documented on the Iranian Plateau. It should be emphasized, however, that in terms of "style" represented by such traits as figurine form and motifs on painted pottery, there is a uniqueness which argues for an indigenous tradition. Here, in the final stage of its development, Russian archaeologists identified a veritable city. This was a complex of flat-roofed structures erected of mudbricks, centred about an open inner square, and surrounded by a circular wall which was pierced here and there by towered gates. The most prominent structure was a building set on a series of platforms. This was associated with a complex consisting of a living area, in which were found small courts and diminutive rooms, some with hearths. Opening onto them, or on a connecting street or hallway, was apparently a storage facility made up of small compartments (2*4 metres square), and a remarkable group of connecting rooms, in which were found a number of burials. Some of these were entire skeletons and some were secondary burials, including single skulls set in niches. They were in proximity to large "storage" baskets, small pottery vessels, bovid bones, jewellery (including a gold bull's head set with lapis), and a variety of enigmatic objects which appear to be amuletic in character. There are small platforms suggesting the presence of altars. The entire complex is virtually a hecatomb, probably representative of a century or more of funerary ritual. It was located on the eastern side of the city.

More central is a group of large houses made up of numerous small rooms opening on inner courts, and separated by main streets and smaller lanes leading on to them. In these houses were found a great quantity of metal (copper-arsenic) seals as well as terracotta figurines of women. These figurines are paddle-shaped with clay applique breasts and hair coils. They are marked by a series of enigmatic, incised signs some of which represent plants. Characteristically, the dead in this part of the site are buried collectively within the houses or courts, with some funerary furniture, including necklaces and ceramics. The remains appear to represent secondary burials ranging over many decades. In this area, both private and (larger) public storerooms are identifiable. There is a striking absence of hearths, ovens, grinding stones and other household paraphernalia, indicating that food preparation for the inhabitants of this quarter was carried on elsewhere, but the evidence of bones indicates that lamb was prominent in the diet of this area of the site.

Nearby, smaller houses have been found, consisting again of a number of rooms, in some of which there were hearths and, in one case, a large courtyard oven. There are the usual household articles and small store-rooms. The faunal evidence indicates that the people here ate mature sheep and goats in approximately equal measure.

An extensive portion of the site was taken up by what appear to be the homes and workshops of artisans. The houses are made up of labyrinths of small rooms, equipped with benches, hearths, storage areas, water jars, etc., according to function. Alleyways or lanes connect these houses to open areas where are located dozens of kilns (capable of firing vessels at temperatures exceeding 1000°Fahrenheit), and metallurgical furnaces.

Burial for these artisans was in single graves near the houses, the dead being accompanied by some utilitarian funerary objects. Analysis of the faunal remains associated with this quarter of the site indicates that not only were sheep and goat consumed, but that perhaps 50% of the meat diet was of wild animals such as the onager, the gazelle and the antelope.

In all, archaeologists have been able to isolate at least four groups integral to the settlement who, in general, played different roles in society and had, for the most part, different funerary practices, dietary habits and traditional rules of descent. These were: those who were associated with the platform tower; those who lived in the large houses with rather rich trappings; those who had individual homes more humble in their attributes; and those who lived in small rural-type structures close to the industrial areas in which they worked. There were also outlying settlements, satellite villages, presumed to be encharged with the agricultural production and conveyance necessary for the subsistence of this large community postulated to have more than 10,000 inhabitants. Archaeologists have found model carts and dromedary-type camel figurines, and have reasonably secure evidence that carts were pulled by camels. Thus, food and goods could be readily brought to Altyn Depe from some distance.

The scale of the settlement and its enclosure within a wall indicate that there was some form of political control; i.e., a leader or group of leaders, supported by a necessary bureaucracy, who oversaw the redistribution of essential goods. Of enormous importance is the fact that nowhere in the site was found evidence for major caches of weapons. Indeed, weapons as a whole were very rare. The wall surrounding the settlement was low and there is no evidence that it was a fortification; it was more likely to *contain* activities than to *exclude* them. This being so, the concentration of population at Altyn Depe could not have been for protection from enemies, which was a major factor in the rise of cities in Sumeria, for example.

The great, platformed building is associated with a group which buried its members in a collective tomb on the premises and who, in life, inhabited the building precincts; evidence for a special and exclusive class whose function was the maintenance of whatever role the building played in the settlement. Clearly, it was a major role. Archaeologists, based on parallels with the construction and focus of comparative builders in Mesopotamia at the time, have suggested that this group was a priesthood. No evidence of meat-eating is found in Russian reports for this class, although they clearly prepared their own food. The bull

seems to have been the critical symbol of this group, although, apparently, cattle were not numerous at Altyn Depe.

The group with larger houses which lack basic household appurtenances, whose habits include the use of metal seals, female figurines, the eating of lamb and collective secondary burial, perhaps represents an elite. The presence of female figurines incised with plant symbols is, of course, a typical trait in the West, and suggests that the ancient concept of the relationship between women and agricultural fertility was traditional. Furthermore, the presence of collective burials within the residence reinforces the idea that a matrilineal society was present. This was a class whose descent was passed through the female line.[2] Since the houses involved are large, contain the finest objects and numerous seals (one of which has an inscription not unlike those found in Harappan contexts), we are warranted to assume an aristocratic class who ruled Altyn Depe and provided the means by which the redistributive system of goods and services could operate. That they confined their meat-eating to lamb reinforces the exclusivity of the class and may, indeed, have something to do with the matrilineal aspect of their social organisation.

The largest group of people, as indicated by the ubiquity of their houses, were probably such commoners as servants, lower bureaucrats attending to the redistribution aspects of government, farmers, herders and other subsistence producers, important in a populous settlement. Their diet, in addition to grain and other fruits and vegetables included both goats and sheep. Their burial customs (single burial of both sexes in graves near the houses with a few pottery vessels), suggest that bilateralism was the likely descent rule. Property holdings varied enormously and strict adherence to one lineage or the other would have been unwieldy. Indeed, the scale of houses suggests that the nuclear family was the ordinary social unit for this class within Altyn Depe. Very likely, the satellite villagers who were their closest relatives tended towards extended families and clan sodalities, as of old.

The artisan group forms a distinct unit and whether or not potters and metalsmiths were regarded as being of different classes is not ascertainable in the archaeological evidence at hand. However, what appears to be an artisans' cemetery (with single burials), and the emphasis on hunting as a source of food, suggests a patrilineal system, perhaps of the master-apprentice type where the sons learned their father's trade. The fact that wild animals were part of the diet is hardly surprising since copper, clay and other materials used by the artisans were obtained far afield, and game would be a natural resource in areas at some distance from the settlement.

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[2] For an elucidation of the relationship of archaeological evidence to social organisation, see Fairservis 1975 or Service 1967, as well as the works of G.P. Murdock and the *Human Relations Area Files* for case examples..

The fascination of Altyn Depe is that it illustrates the consequences of increasing dependence on non-subsistence producers, and non-farmers in general; that is, the development of occupational classes. These classes were probably endogamous and possessed customs and habits that distinguished them from one another. Simply on the basis of dietary habit, occupational emphasis, condition and type of house (and household) as well as funerary custom, we can reconstruct a class system for Altyn Depe:

Role	Class	Diet	Social Organisation
Chiefs	Priests and those of semi-divine lineage	Vegetarian	Chosen from the elite
Upper Bureaucracy	Elite	Vegetarian and lamb	Matrilineal
Lower Bureaucracy	Urban commoners	Grain and domestic animals	Patrilineal
Farmers and Herders	Rural commoners	Grain and domestic animals	Patrilineal
Craftsmen and Hunters	Artisans	Grain, domestic and wild animals	Patrilineal

No writing system has been discovered at Altyn Depe, although systems of mutually intelligible graphic symbolisms, like the cryptic marks on figurines and designs on seals and pottery, were common enough. More than this, the cognitive map by which people related to their society included recognition of the symbols of class, and thus the kind of address necessary in each case. The whole society was under a mutual obligation to act symbiotically. The absence of a military suggests that a moral authority underlay human transactions, reinforced by the interdependence of classes. Speculative as some of these conclusions must be, there are sufficient facts to substantiate the phenomenon of a relationship between a particular diet and particular occupations in a site of the Central Asian Bronze Age. This phenomenon is also postulated for Shahr-i-Sokhta in Iranian Seistan and for Mundigak in southern Afghanistan. A rather striking aspect of this development is the low percentage of cattle in the faunal record for this part of Central Asia. Cattle, in turn, are of great importance to the Indo-Aryan speakers of the Ṛgveda.

The notion that results from this archaeological data and its possible relationship to Ṛgvedic accounts is that the people of the Veda were part of, or highly influenced by, a Central Asian Bronze Age civilisation, in which the socio-political system was based on class. Each class was integrated into a symbiotic socio-political system which regulated the complexities of an increasingly urbanised culture, strongly based on agricultural and craft specialisation. That

culture's location close to, and within, a desert-grassland environment in which large-scale cattle pastoralism became increasingly important, perhaps because of the value of herd size and number, culminated in some sort of social and political schism which, in the 2nd millennium BC, saw the decline of the material wealth and control of the urban culture, and the rise to dominance and movement of exponents of cattle- and other kinds of pastoralism. However, these pastoralists originated in, and were influenced by, the urban culture and carried with them the class consciousness of that culture as change occurred. It could be that the urban culture declined owing to the precarious relationship of cultural complexity, growing population and depletion of subsistence resources in periods of aridity which brought about an increased lack of cohesion in such a widespread region.

However, during the heyday of the Central Asian Bronze Age there was contact between Inner Asia and the Indus River Valley, evidenced in the latter for example by such Harappan traits as pedestalled vessels, dice-playing, cattle wealth, chieftainships, large-scale public or elitist structures, clan sodalities, certain graphemic symbols, and the urbanising process in its Indianised form (Fairservis 1992). The decline of the Harappan hegemony was not owing to an invasion by enemies, but to the loss of centralising factors that kept the system cohesive. One of these factors may have been owing to a decline in the material value of regular contact with Inner Asia, which caused both the change in the Central Asian Bronze Age civilisation, and the centrifugal tendencies of the Harappan chieftainships. Thus, the Harappan cultural type, which owed its core genesis to an older Elamo-Dravidian speaking people who had been "Indianised" in the Indus River Valley, faded out in the second millennium BC.

This loss of cultural style also occurred in the case of the Central Asian Bronze Age civilisation. However, the cattle pastoralists, whether of that civilisation's ethnic affinities or not, created the cultural style described in the Ṛgveda which amalgamated class division with Central Asian ideologies, emphasizing monotheism and consequent order; i.e., *varṇa* with *ṛta*. The terms are Indo-Aryan. Could it be that the advent of full-scale cattle pastoralism in Central Asia, and its cohesiveness there, is symptomatic of the growing utility of the Indo-Aryan tongue as an Inner Asian *lingua franca*, which the older, urbanised Central Asian culture's language lost with the decline of that culture? Is it possible that the language of the Central Asian Bronze Age was a form of Elamo-Dravidian, like that of the Harappans with whom they were in regular contact?

Whatever the case, we are justified by our evidence in making these speculations, remote as they may be from the truth.

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10. Interaction systems, specialised crafts and culture change: The Indus Valley Tradition and the Indo-Gangetic Tradition in South Asia

Introduction

Previous attempts to understand the complex transition between what is commonly referred to as the Indus Valley Civilisation (2600-1900 B.C.) and the Early Historical Period of South Asia (beginning around 600 B.C.) were limited by the nature of the collected data and the prevailing political and academic models for culture change. These earlier models portrayed the Indus Valley Civilisation as an enigmatic urban culture that sprang up and then disappeared, eventually to be followed by an alien and unrelated urban culture during the Early Historic period. Needless to say, the current state of research, including archaeological, anthropological, economic, historical and linguistic evidence no longer supports these simplistic models and they should be replaced.

In order to address the complex period of transition between the Indus Valley Civilisation and later urban cultures, it is necessary to develop a more useful theoretical framework and adopt new labels. The Indus Valley Cultural Tradition is a general concept (formulated most explicitly in Shaffer 1991: 442) which refers to the total phenomenon of human adaptations that resulted in the integration of diverse communities throughout the Greater Indus Valley and adjacent regions, the latter including Afghanistan to the northwest, the northern Gaṅgā-Yamunā Doab to the east and the regions of modern Gujarat to the southwest (Kenoyer 1991b) (Figure 1). The Indus Valley Cultural Tradition emerges around 6500 B.C. and continues until as late as 1500 B.C. or beyond. During the Integration Era of this Tradition, the Harappan Phase, datable from approximately 2600 B.C. to 1900 B.C., features what can be considered the earliest state level socio-political organisation in South Asia (Jacobson 1986; Kenoyer 1991b).

Based on the current state of research I feel that the Indus state was composed of several competing classes of elites who maintained different levels of

control over the vast regions of the Indus and Ghaggar-Hakra Valley. Instead of one social group with absolute control, the rulers or dominant members in the various cities would have included merchants, ritual specialists and individuals who controlled resources such as land, livestock and raw materials. These groups may have had different means of control, but they shared a common ideology and economic system as represented by seals, ornaments, ceramics and other artefacts. This ideology would have been shared by occupational specialists and service communities, who appear to have been organised in loosely stratified groups.

The multiple levels of control that are demonstrated from the archaeological remains reveal the unique in the ways by which the Harappan state controlled access to resources and maintained socio-economic and political hierarchies. It is probable that the cities were more rigidly stratified and segregated than the rural settlements, which would have included larger numbers of farmers, pastoralists, fishers, miners, hunters and gatherers, etc. The largest cities may have been relatively independent, possibly even small city states, with direct political control only over local settlements and lands. Political and economic integration of the cities may have been achieved through the trade and exchange of important socio-ritual status items.

In the past it was thought that this society disappeared, leaving only a vague and ill defined legacy, but continued excavations and analyses are revealing significant connections between the Harappan phase and later cultural developments (Shaffer 1988b). These connections can be traced in various aspects of society, including subsistence activities, technologies, economic networks, urban organisation and possibly socio-ritual as well as political structures.

Following the framework outlined by Shaffer (1991) I will propose the label Indo-Gangetic Tradition to refer to the major human adaptations that included the larger geographic region extending over both the Gaṅgā-Yamunā river valley as well as the Greater Indus river valley (Figure 2). This transformation is generally associated with the Early Historic states that arose between 600 B.C. and 300 B.C., primarily in the Gaṅgā-Yamunā river valley.

The Indo-Gangetic Tradition is a more complex phenomenon than the earlier Indus Tradition and results from the synthesis of cultural developments occurring over a larger geographical area of the northwestern subcontinent. It includes the early developmental phases of northern peninsular India (Sharma et al. 1980), which could be given other labels such as the Gangetic-Vindhyan Tradition, but not enough information has been obtained to define them in this way at present. These early cultures undoubtedly parallel the Early Food Producing Era of the Indus Valley Tradition, and their synthesis with the decentralised communities of the latest phase of the Indus Valley Tradition (Localisation Era - cf. Shaffer 1991) provides a unique opportunity to observe complex processes of culture change. Through careful study of different aspects of material culture it

is possible to isolate specific continuities from the Indus Valley Tradition and input from non-Indus communities (Kenoyer 1992).

The period during which these two trajectories of adaptations became synthesized can be described as the Regionalisation Era of the Indo-Gangetic Tradition. Dating from approximately 2000 B.C. to 300 B.C., this was a period during which the localised cultural networks of the Indus Valley Tradition (Shaffer 1991) overlapped with the regionalising processes occurring in the peripheral regions of the Gaṅgā-Yamunā Doab and the Malwa Plateau.

The geographical and cultural areas that were once core and periphery from the perspective of the Indus Valley Tradition, gradually become reversed with the establishment of new centres of ideological, economic, political, and military power (Mann 1986) in the more extensive Indo-Gangetic Tradition. Most of the present archaeological evidence for the Indo-Gangetic Tradition derives from the Gaṅgā-Yamunā region and the northernmost portion of the Indus Valley, around Taxila. We can assume that the vast area of the Indus valley itself continued to be inhabited and that most of the sites from this period were established along the newly stabilised rivers and lie buried under cities that have been occupied continuously since that time, i.e. Sehwan Sharif, Multan, Kamalia, Harappa, Pak Patan, Depalpur, Lahore, etc.

In this paper I will focus primarily on economic interaction networks and specialised crafts to show how they can provide a window on the other changes that may have been occurring. First I will examine specific varieties of specialised crafts and interaction networks that characterised the Harappan Phase and then compare these interaction systems with those of the subsequent cultural phases.

The Indus Valley Tradition

Environmental Setting

Interaction networks and the rise of specialised crafts is closely tied to the overall environmental setting and the natural distribution of specific resources (Figure 3). Based on the distribution of Harappan Phase archaeological materials it is evident that the total environmental setting of the Indus civilisation includes the highlands and plateaus of Baluchistan to the west, and the mountainous regions of northern Pakistan, Afghanistan, and India to the northwest and north (Figure 1). Two major river systems formerly watered the greater Indus plain, the Indus and the (now dry) Ghaggar-Hakra. They reached the sea in separate courses, the Indus delta extending into the Arabian Sea to the west and the Ghaggar-Hakra (called the Nara in Sindh) delta extending into the Greater Rann of

Kutch to the east (Flam 1986, 1992, in press; Lambrick 1964; Wilhelmy 1969). Their floodplains provided vast areas for grazing and agriculture. The chronology of changes in the rivers and the hydrological regime is not certain, particularly for the northern tributaries (Courty 1989; Francfort 1989b; Gentelle 1986), but the two rivers were probably quite different. The Ghaggar-Hakra had a lower gradient, so the floods would not have been so devastating (Fentress 1985; Ratnagar 1986). This is apparent from the number of sites preserved along the banks of, or in the plain adjacent to, the Ghaggar-Hakra (Mughal 1974, 1984, 1985), compared with the number associated with the Indus.

There is a significant division of the alluvial plain into northern and southern regions (Punjab and Sindh, respectively), approximately at the change in gradient, where the five major tributaries of the modern Indus become a single river. In the north, there is more rainfall from both the summer monsoon and the winter rains (200 mm or more) (Dutt and Gelb 1987), whereas rainfall in the south is unpredictable and, in bad years (as in 1986-1988), there is little or no rain at all. The relatively flat plains of the Punjab merge on the east with the drainages of the Yamunā and Gaṅgā Rivers, where many Indus Tradition sites are known. Further south, the course of the Ghaggar-Hakra is bordered on the east by the great Thar desert, which is itself bounded by the Aravalli ranges (Allchin, Goudie and Hegde 1978).

Along the coast, west of the Indus delta, is the arid and rugged mountainous region of the Makran. It is also important to note that the northern coast of Oman falls within the direct interaction systems of the Harappan Phase. East of the delta is the insular region of Kutch and the larger peninsula of Saurashtra, which itself may have been a prehistoric island. These two areas are often grouped with the coastal plains of Gujarat, but they are distinct sub-regions (Bhan 1989; Joshi 1972; Possehl and Raval 1989). The Gujarat plains are bordered on the north by the southern Aravalli ranges and on the east by the Vindhya and Satpura ranges.

Harappan Phase Specialised Crafts

Specialised crafts have long been noted as an important aspect of the integration observed during the Harappan Phase although there are different interpretations regarding aspects of segregation and standardisation (see Kenoyer 1991a; and Kenoyer, Vidale, et al. 1991 for more discussion). Recent studies have shown that some crafts may have been segregated to control production of status items, but others may have been segregated for more basic reasons related to access to materials and labour. Similarly, the standardisation of items such as weights or seals may be attributed to centralised control, while other objects, such as pottery and ornaments, may have been standardised by mechanisms that reflect a shared ideology and aesthetic. For example, kin-related learning pro-

cesses or the spread of kin-related artisans to different settlements can result in a high level of standardisation (Kenoyer 1989).

During the Integration Era, specialised crafts that had roots in the preceding Phases became more complex in terms of technology and in the varieties and combinations of materials processed. Styles also changed and, although there is a general similarity throughout the greater Indus region, detailed studies of specific types reveal the presence of important local variations (Dales and Kenoyer 1986; Kenoyer 1984a; Pande 1984). Certain sites may also have become primary manufacturing centres for items related to socio-economic or ritual status (Dales and Kenoyer 1977; Jarrige 1981; Kenoyer 1989; Rissman 1989; Vidale 1989; Vidale and Bondioli 1986; Wright 1989).

In order to understand the different roles of specialised crafts it is important to distinguish at least four categories of crafts practiced at Harappan sites; 1) those processing local materials using simple technologies; for example, wood-working, terracotta production and house-building; 2) those processing non-local materials using simple technologies; chipped, ground and pecked stone industries; 3) those processing local materials using more complex technologies; stoneware bangle manufacture, elaborate painted and specialised ceramics, inlaid woodwork, etc.; and 4) those processing non-local materials using more complex technologies; agate bead manufacture, seal production, copper/bronze metal working, precious metal working, shell working, faience manufacture, etc. In general, the first two show more regional variation, while the last two appear more standardised.

The organisation of craft production was probably varied, and included small and large scale kin-related production and more centrally controlled production of high-status items (painted pottery and stoneware bangles) for local or long-distance trade (Wright 1989).

During the Harappan Phase, some technologies reached very high levels of expertise, especially the manufacture of long carnelian beads (Kenoyer 1986), steatite seals (Rissman 1989), stoneware bangles (Halim and Vidale 1984), compact frit or faience (McCarthy and Vandiver 1990) and bronze objects (Agrawal 1971). This ability to create new substances out of mundane raw materials was highly developed and there is evidence for the trade of Indus objects as far as Mesopotamia and possibly Egypt (personal observations).

In summary, some crafts were apparently structured on the basis of kin networks and were decentralised in terms of state control. Others may have involved long-distance kin networks and alliances that could be decentralised in terms of direct political control, but required some centralised support to maintain long-distance trade relations. Crafts that were difficult to control directly may have been less important for the state economy, while easily controlled crafts could have been more so.

Raw Material Source Areas and Interaction Networks

Specialised crafts use different types of raw materials, and through the sourcing of the latter it is possible to define specific resource areas that were exploited during the Harappan Phase. These raw materials were processed near the source areas or transported to distant manufacturing centres where they were modified using specific technologies. Special status objects, or tools that were produced from raw materials and specific technologies, were used in the vicinity of the production centre or redistributed to other regions.

Raw materials that were more commonly available, such as clay, can also be followed from specific workshops to more distant consumers through detailed chemical and technological studies. Through these various methods, it is possible to define specific interaction networks that existed during the Harappan Phase and document their changes in the following transitional periods. Although more sourcing studies need to be undertaken, the following examples provide much of the critical information needed for a comparison with later developments in the Regionalisation Era of the Indo-Gangetic Tradition.

Marine Shell

The most detailed study of Harappan interaction networks has been conducted using shell objects (Kenoyer 1983, 1984b) (Figure 4). Through various distribution studies and interpretive models it has been possible to define several regional trade network systems and also hierarchical levels of interaction that encompassed the entire extent of the Harappan Phase settlements. Some of the trade in shell even extended beyond the Harappan cultural boundaries into the peripheral regions of peninsular India, northwest into Afghanistan, and north into Central Asia.

Carnelian

Carnelian nodules capable of producing long carnelian beads of deep red-orange colour are presently found only in the regions of Kutch and Gujarat (Figure 5). Only one major manufacturing centre for long carnelian beads has been defined at the site of Chanhu-daro, but limited evidence for carnelian bead production is also found at most major excavated sites, e.g. Lothal, Moenjo-Daro, Harappa, and possibly Kalibangan. There is one other possible source for large carnelian nodules in modern Yemen, but there is no evidence to indicate its use during the Harappan Phase.

Grey-Brown Chert

The major sources of grey-brown chert for the Harappan Phase were probably

the massive limestone outcrops at Rohri in central Pakistan (Figure 6). There are, however, sources of identical materials to the south and occasional nodules of similarly coloured cherts are found in the rivers flowing out of Baluchistan. Detailed studies of cherts and other materials used to make flaked stone need to be conducted to define more precisely this important network.

One of the most important categories of artefacts produced from grey-brown chert is the cubical weight used throughout the Harappan Phase, which has been found distributed far beyond the borders of Harappan cultural dominance. Cubical weights were also produced in agate and other hard stones, but in much smaller numbers. This could be explained by the specific gravity of the chert, which is different from agates, and by the availability of the raw material. It was much easier to make graded sizes from chert, whose weight distribution was much more even than that of agates, and which was also the more commonly available.

Lapis Lazuli

Although the amount of lapis lazuli used during the Harappan Phase may be less than that seen in Mesopotamia or even Egypt, this raw material has been found in most excavated sites and actual manufacture was definitely being conducted at Moenjo-daro, and Harappa. The major source areas for lapis lazuli can be isolated to very limited areas in the Chagai Hills of Southern Baluchistan (Jarrige 1988) and in the area of Badakshan, Northern Afghanistan (Francfort 1984, 1989a) (Figure 7). It is not possible to determine if either region was a primary source area; it is more probable that by the end of the Harappan Phase both areas were being used simultaneously.

Steatite

Numerous varieties of steatite and serpentine were being used at Harappan sites to make beads and other objects, including sculpture. The colours range from light greenish-white, to dark grey, to grey-black. Several different sources have been identified that could have been used exclusively or simultaneously (Figure 8). These include southern and northern Baluchistan, and the Aravalli range extending from Haryana to modern Gujarat. These two major resource areas provide extensive deposits along both edges of the Greater Indus Valley and it is not surprising that the evidence for steatite processing and firing of steatite to make hard beads, pendants or seals has been found at almost every excavated Harappan site.

However, specific objects made from steatite, for example seals or sculptures such as the "Priest King", were probably being produced only at specific sites and in specific workshops. Now that we have a more complete corpus of

high quality photographs of the seals and tokens (Joshi and Parpola 1987) it is possible to conduct more detailed studies of the possible schools of seal-making as proposed by Rissman (1989). Since seals are one of the most important indicators of status and power, this study will be extremely significant for defining networks for the distribution of seals themselves, as well as the goods that were being controlled most closely.

Copper

Copper ore deposits can be divided into three major source areas, Baluchistan/Afghanistan, the Aravalli Hills in Rajasthan (Agrawal 1984; Agrawala 1984; Agrawala and Kumar 1982) and the major deposits in Oman to the south across the Gulf (Weisgerber 1983, 1984) (Figure 9). Although there is considerable evidence for third millennium smelting in the resource areas themselves, there is little evidence for smelting areas at sites that are distant from the ore sources (Kenoyer and Miller 1993). The earlier excavators at both Moenjo-daro (Marshall 1931; Mackay 1938) and Harappa (Vats 1940) suggest that copper may have been smelted at the site itself, but there is very little convincing evidence to support this interpretation. In our recent work at Harappa we have found tiny pieces of what appear to be copper ore, but this could have been used for faience manufacturing or for pigments. Several copper-working furnaces have been identified at sites along the Ghaggar-Hakra River valley (Mughal 1982), but again there is no concrete evidence for the specific act of smelting.

Tin

One of the most important raw materials for the production of bronze during the Harappan Phase is tin, but it has only been quite recently that the probable sources of tin have been identified near the important site of Mundigak in Afghanistan and possibly near the lapis lazuli mining areas in northern Afghanistan (Stech and Pigott 1986) (Figure 9). Continued research into the mining or collection processes need to be undertaken, but it is not unlikely that the basic networks for tin will correspond with those resulting from copper working.

Numerous other raw materials and commodities need to be studied, including gold and silver, alabaster, coloured sandstones, quartzite grinding stones, fish and animal resources, etc. By combining all of these multiple lines of evidence it will be possible to establish specific patterns of interaction within the Greater Indus Valley and better understand the economic and socio-political framework within which the Harappan peoples functioned. Nevertheless, it is still possible to make a preliminary interpretation based on the present information.

Harappan Phase Economic Interaction Systems

It is clear that one major mechanism for integrating the widely dispersed settlements of the Harappan Phase appears to have been the socio-ritual need for specific materials and products. These products were distributed through economic networks that have been discussed above. Through a careful study of specialised crafts and the resource areas that produced specific raw materials, it is possible to define various economic interaction systems that became established during the Harappan Phase. Conversely, the absence of such economic interaction systems is extremely important, because it indicates the lack of both political and kin relations between regions.

Based on the present data it appears that the economic interaction systems were highly stratified (Kenoyer 1989). The larger cities were directly connected with external regions and to each other by inter-regional networks. Intra-regional networks connected these cities to towns and villages. Local exchange systems redistributed locally produced items and essential commodities to villages, pastoralists, etc.

Three different systems of trade/exchange may existed during the Harappan Phase. The first, based on the standardised weight system, may reflect a centralised authority or a coalition of merchants that maintained the standardised system to control the trade of specific commodities. The second system was probably regional, involving the exchange of grain for other commodities using generalised measures in baskets, bales or pottery vessels. Verification of the quantity or value may be represented by post-firing graffiti on pottery vessels (often consisting of what are thought to be numerical symbols) and the use of seals on bales and storage vessels (Joshi and Parpola 1987; Rao 1979). Platforms along the streets, special public structures and open areas in sites may have been market places similar to the bazaars in traditional southern Asian towns (Mackay 1938).

A third possible form that has not been defined archaeologically is the exchange of goods for services between occupational specialists and those controlling land, grain or livestock. Historically, these relationships are often hereditary and commonly function in a rural context (Harper 1959; Kenoyer 1989). On the other hand, ethnographic studies of shell trading and agate bead trading show that these types of relationships can also be established between resource areas and urban producers or consumers. In fact, long-distance trade networks often result from extended kin relations or hereditary alliances between producers and consumers (Kenoyer 1989).

Once the Harappan Phase urban phenomenon was established, internal and external trade was a critical factor in maintaining the hierarchical structure of Indus society. The fact that two or more sources were utilised for almost every known raw material must have presented a unique opportunity for competition

between merchants and suppliers and a major problem for elites who were trying to control access to potentially high status materials. For example, copper ore could have been processed in one of three regions each of which had the capabilities of supplying all of the copper needed for the entire Indus region. The use of the different resource area in Oman could reflect a period of confrontation with source areas in Baluchistan or the Aravallis (Cleuziou and Tosi 1989). Alternatively, entrepreneurs from Oman or from the Indus may have been trying to capture part of the Indus market by introducing new resources from Gulf.

The differentiation between similar raw materials from different source areas and the control of trade and production within the Indus region itself would have required a complex mechanism for documentation and identification. Harappan writing and the use of inscribed seals was undoubtedly a key element in this control mechanism and it was definitely used in documenting the access and distribution of key resources (Rao 1979, 1985) as well as in the production of specific status items (Halim and Vidale 1984; Vidale 1989).

The extensive use of writing differentiates the Harappan from preceding and immediately succeeding phases. Although the script has not been deciphered, careful examination of its use provides information on the socio-economic and ritual practices of the Harappan Phase (Lamberg-Karlovsky 1986). Its functions included the identification of ownership of goods or economic transactions, accounting, the recording of socio-political or ritual events and less formal graffiti (Fairservis 1983; Parpola 1986). The absence of long texts on clay and of bilingual texts cannot be explained by a lack of research. It might indicate that use of the script was confined to elites and that it was not used by the general populace or shared with foreign trading partners.

The script was written on a wide range of objects and in various media and styles. It was incised in negative for making positive impressions, incised in positive, moulded, scratched into wet or fired clay, stamped and painted (Fairservis 1983; Parpola 1986). The most common form of writing is on the intaglio seals, mostly made of carved and fired steatite (Figures 10.a-c). Impressions of seals have been found on pottery, lumps of wet clay or bullae for sealing containers or rope-tied bales. Sometimes only one seal was used (Dales and Kenoyer 1990b; Joshi and Parpola 1987) and sometimes two or more (Rao 1979). When a seal was not available or appropriate, signs were scratched into the wet clay lumps by hand (Dales and Kenoyer 1990a).

Inscriptions are also found on objects not intended for making impressions. These include incised steatite tablets with or without iconographic motifs, clay or faience tablets with moulded bas-relief script, and numerous incised tools and ornaments. The script was inscribed on pottery before or after firing, stamped on pottery, used in moulds to make raised symbols on the bases of large storage jars, and incised on potsherds, terracotta cakes or terracotta cones (Joshi and Parpola 1987). No inscriptions have been found on architecture or as painted

murals, though the recent discovery of large inlay script from Dholavira suggests that it may have been used in this manner on specific occasions. The script may well have been written on cloth, palm-leaves or carved into wooden objects, but the absence of long texts on permanent materials could indicate that such records were not kept at all.

The variety of contexts in which writing was used has led to the suggestion that those using it were dispersed throughout the population, rather than being isolated in certain parts of town (Lamberg-Karlovsky 1986). However, this dispersed pattern of writing could result from disturbance through erosion, rebuilding, etc. and may not represent the original locations of use. Recent excavations at Harappa (Dales and Kenoyer 1990b) have revealed a distribution of seals and inscribed objects that may indicate the restriction of seal-users to certain areas - along major access routes and main streets. Further evidence for the restricted use of writing is that only a few of the more common objects such as terracotta bangles, pottery, or copper tools are inscribed.

Whatever the meaning of the script, and regardless of who could read or write, it represents shared symbols and a shared ideology that was distributed over an extremely large area. These shared beliefs were undoubtedly a key factor in the integration of the urban and rural populations. Consequently, the disappearance of the common use of the Harappan script indicates a major break in ideological legitimation and in the need to control the access to raw materials or the production and distribution of finished goods. In other words, there was no need to use the script if it did not function to support and reinforce the interregional and supra-regional networks. These networks would have included socio-economic, ritual and political structures.

It is important to note that the discontinuity in the use of the script coincides primarily with a gradual breakdown in long distance trade and exchange, particularly between the coastal regions and the northern Indus and Gangetic plains. On the other hand, there are important continuities in craft traditions using locally available materials and new varieties of materials acquired through regional exchange networks.

Indus Valley Tradition, Localisation Era

Shaffer (1991) has defined the Localisation Era as the final period of the Indus Valley Tradition (Figure 11). It is comprised of various Phases that have been tentatively defined as the Punjab Phase (= Cemetery H, Late Harappan), the Jhukar Phase (= Jhukar and Pirak) and the Rangpur Phase (= Late Harappan and Lustrous Red Ware) (Shaffer 1991).

While there is no time to go into detail regarding the changes occurring in each of these major traditions, it is important to note certain key points. Wher-

ever Localisation Era sites are known, there is an apparent increase in settlement, a localisation of interaction networks and the development of regional cultural expression (Bhan 1989; Jarrige 1973, 1985; Mughal 1990, 1992; Possehl and Raval 1989; Shaffer 1987, 1991). These processes probably represent the rise of regional polities that were no longer integrated by a single ideological and economic system. The reasons for decentralisation or localisation are complex and regional in nature. The most important factors are summarised below.

In the core regions of the Indus and Ghaggar-Hakra valley, the overextension of socio-economic and ritual networks and the fatal disruption of the agricultural base were major contributors to decline. Due to sedimentation and tectonic movement, the Ghaggar-Hakra system was captured by the River Sutlej of the Indus system and the River Yamunā of the Gangetic system (Misra 1984). The Indus itself began to swing east, flooding many settlements in the process (Flam 1981, 1991; Mackay 1938, 1943). The mounds of Moenjo-daro survived because they are on slightly higher land and were protected by massive mudbrick platforms. Sites such as Harappa continued to be inhabited and are still important cities today. However, many less fortunate settlements along the dry bed of the Ghaggar-Hakra system were abandoned and their inhabitants were forced to develop new subsistence strategies or move to more stable agricultural regions.

The details of change during the Localisation Era are difficult to evaluate due to inadequate excavations and what I feel are interpretive biases by the excavators. We need more detailed reports on the types of agate beads, the varieties of chert, metallographic studies of the copper or bronze objects and the careful stratigraphic assessment of specific artefacts. For example chert tools referred to as microliths may be reported, but we do not know if the chert is locally available or obtained through trade with a distant resource area. Occasional shell bangles are reported from excavations, but we do not know if the excavator was careful to note the precise stratigraphic location and confirm that it is associated with a specific chronological phase. Modern shell bangle fragments can drop through cracks or rodent holes, and earlier shell ornaments can be mixed with later deposits. Even more problematic is the fact that cubical weights and inscribed steatite seals are generally assigned to the Harappan phase without consideration of specific stratigraphic or chronological context. While this type of bias is more applicable to surface surveyed sites it is probably occurring in excavated sites as well.

Because there are a few examples of writing in the Late Harappan sites in the Gaṅgā-Yamunā Doab (Dikshit 1984; Joshi 1978) and Gujarat (Rao 1979, 1985), it is not unlikely that the use of weights and writing continued for some time into the Localisation Era. Excavations of Late Harappan Phase settlements with the specific goal of defining the changing patterns of raw material access, production and distribution are needed to fill in this critical period of transition. Nevertheless, by looking at the subsequent periods in both the Gaṅgā-Yamunā

and Indus regions, it is possible to define the general pattern of change that was occurring.

During the Localisation Era the major changes can be defined as a decline in urbanism and in the control of long distance trade. Economic exchange systems become more localised in each of the major regions defined by Shaffer.

Punjab Phase

Although the Cemetery H culture may have been contemporary with, or derived from, the Harappan Phase, recent excavations at Harappa combined with the extensive surveys of Mughal in Cholistan indicate that it became a distinctive phase and continued later than the Harappan Phase, possibly down to 1700 B.C. (Dikshit 1984). The chronological extent of more generally defined "Late Harappan" levels at sites in the Indian Punjab, Haryana, and Uttar Pradesh appear to continue even later, to 1300 - 1000 B.C..

While many sites, including Harappa, continued to be occupied in the Punjab Phase, the number of sites reported from the Cholistan region decreases by two-thirds (Mughal 1982, 1990). On the other hand, there is an increase in Late Harappan settlements in northwestern India that may represent a migration from Cholistan to the Doab region. According to Mughal, even with these shifts there is a 3-tiered settlement system during the Punjab Phase, though on a relatively smaller scale.

The use of writing and weights in the Punjab Phase is unclear due to a bias in reporting, whereby seals and writing are used to identify the Harappan Phase. If they are found, then the site is dated to the Mature Harappan, and if they are are not found then it is classed as Late Harappan. Nevertheless, it is quite likely that there was no need for writing or weights during this phase, because we see a gradual decline in long distance trade. This decline is documented primarily by the absence or rare occurrence of marine shell objects. No shell bangles have been reported between northern Punjab and Uttar Pradesh during the Late Harappan, or in the following Painted Grey Ware Phases, except possibly at one site - Manda (Joshi and Bala 1982). There is also very little use of steatite, lapis lazuli, turquoise, serpentine, etc. These reflect a breakdown in the internal trade networks and a lack of inter regional integration.

On the other hand there is an apparent increase in the use of faience and terracotta, possibly to replace shell and steatite. Copper objects continue to be manufactured, but it is not clear if tin bronzes continued to be produced. This is an important point that needs to be addressed in future research, as it would indicate whether or not there were connections between the highland tin resource areas and the northern plains.

During the Punjab Phase in the Doab region there is no detailed report on the types of chert being used, and it is possible that they were still obtaining

cherts from Rohri, but they could also have been utilising the closer agate and chert resources from the Vindhyas to the South. While there is a continuity in the production of stone beads from coloured cherts and agate, we do not have any evidence for the production of long carnelian beads that would have been made from nodules coming from Gujarat. It is probable that the agates and other rocks used to make beads during the Punjab Phase were limited to what was locally available. The detailed reporting of these small finds is crucial to understanding the changing interaction networks during this transition period.

The general pattern seen during the Punjab Phase is one of expansion into the Doab accompanied by rural dispersal and the localisation of interaction networks to the exclusion of marine and western mountain resources. The dominant raw materials needed to make tools and ornaments would have been locally available: copper from the Aravalli, faience, clays, and local cherts (of unknown type).

Jhukar Phase and Pirak Phase

The Jhukar Phase overlaps with the Harappan Phase, but evidently continues much later (Mughal 1992). Unfortunately, no good radiocarbon dates have been obtained for the latest levels of Jhukar occupations. Sites such as Jhukar and the presence of other settlements with similar types of pottery, including Chanhu-daro, Moenjo-daro and Amri, would indicate the continued presence of regional interaction and, possibly, of urban centres. Most of the material culture shows continuities with the preceding Harappan phase, but there is a change in the shape of seals to round forms with geometric designs and an absence of writing. However, Jhukar circular seals are similar to the seals found at Pirak, a site that is located on the Kachi plain to the northwest of Jhukar.

Shaffer (1991) groups the Pirak Phase with the Localisation Era of the Baluchistan Tradition, but it could also be grouped with the Indus Valley Tradition. The site of Pirak is dated to 1700-700 B.C. (Jarrige and Santoni 1979) or 2000-1300 B.C. (Shaffer 1991). Pirak is 9 hectares in size (a town). In comparison, Lothal is 7.5 hectares. Other sites similar to Pirak have been found in the Kachi plain as well as in the highland valleys, indicating a continued integration between the plains and the hills (Jarrige 1985).

Important new aspects of material culture include horses, horsemen and camels with riders (Pirak I and II). By the end of Pirak II they are painted with trappings and are wheeled. There are human figurines with pinched features, and applique coiffures and ornaments similar to the figurines of 3rd millennium B.C. Mehrgarh and Shahr-i-Sokhta.

Other important artefacts include terracotta compartmented seals - square and circular with geometric forms - copper compartmented seals and buttons. Beads of terracotta are relatively common, but lapis lazuli and carnelian beads are

reported as quite rare. It is important to note that when visiting the site in 1983 I found several lapis lazuli beads, one of which was unfinished, indicating its continued production locally.

Conch shell bangles have been reported from period II and would indicate some continued contact with the coast. Copper artefacts are common in periods I and II, including copper crucibles that are interpreted as relating to copper smelting. The copper artefacts include points, axes/chisels, rods and possible drills. The first iron objects were found in period III and probably derive from iron resources in Baluchistan rather than from the Aravalli hills to the east.

At Pirak the presence of the camel is significant because it links the site to the western highland regions. The Bactrian camel was the most common in figurines, and possibly some Dromedary were present. Its importance could be linked to use in transport (Shaffer 1988) - or the development of what can be called the *modern style of pastoral nomadism*, with camels as the principal beasts of burden. Horse figurines with riders indicate a new form of transportation, and donkeys were also present. New cereals such as sorghum and millets provided fodder for animals not adapted to the arid Kachi plain (horse and possibly some cattle) (Jarrige 1985).

The overall picture from the Kachi region and, by extension, the southern Indus Valley depicts the continued dynamic relationship between agriculturalists and pastoralists who exploited both the plains and the highlands to the west (Jarrige 1985). There is evidence for the intensification of subsistence practices, multicropping and the adoption of new forms of transportation (camel and horse). These changes were made by the indigenous inhabitants, and were not the result of new people streaming into the region. The horse and camel would indicate connections with Central Asia. The cultivation of rice would connect with either the Late Harappan in the Gaṅgā-Yamunā region or Gujarat.

Rangpur Phase

As has been seen in both the southern and northern regions of the Greater Indus Valley, the transition from Harappan to Late Harappan in Gujarat witnesses an increase in the number of settlements (Bhan 1989; Joshi 1972; Possehl 1977, 1980). Corresponding to this expansion, we see the loss of most of the typical Harappan Phase artefacts: weights, perforated vessels, terracotta cakes, Indus goblets. Grey-brown chert is replaced almost entirely by local silicates, indicating a break in exchange networks with the central Indus and southern Sindh.

Steatite doesn't seem to have been very important and remains rare, though it would have been available just to the north in the Aravalli mountains. Other local stones such as amazonite, agate and carnelian are quite common and continue to be used for making beads with the same techniques that were being practiced in the Harappan Phase. Shell bangle manufacture and the production of

faience beads and ornaments continues. The use of writing continues for some time in the form of graffiti, but there is a noticeable absence of square steatite intaglio seals.

The overall pattern reflects a continuity in most craft traditions using locally available materials, but a break in exchange networks linked to the Indus Valley and the highland regions of the west. The fact that local pottery types include the peninsular varieties of Black and Red ware, suggests more interaction with the east than with the west.

After 1400 B.C. there is a break until the emergence of NBP ware sites in 600 B.C., but the manufacture of agate beads, shell working and metallurgy indicate some important continuities in craft traditions. In Gujarat we should be able to define the continuity from the Late Harappan through to the Early Historic period soon.

The processes described above can be interpreted as the establishment of regional polities which may have remained as small city states or chiefdoms. Whatever their specific internal organisation, these regional polities destroyed the integration achieved by the Harappan Phase cities, and allowed the establishment of new peripheral polities in the Gaṅgā-Yamunā Doab. Shaffer (1993; cf. Shaffer and Lichtenstein 1989) has suggested that this period be conceived as a phase in the development of the Early Historic city states and militaristic territorial states. In other words the Localisation Era coincides with the Regionalisation Era of the Indo-Gangetic Tradition. The later Early Historic cities reflect the development of a socio-political system that was on a completely different level of integration than that possible in the Indus period. The difference may be due in part to the vast area involved, and to the diverse populations and new resources that were controlled.

The Indo-Gangetic Tradition

Regionalisation Era

The overall environmental setting of the Regionalisation Era includes the total area described above for the Indus Valley Tradition, with the addition of the remaining portions of the Gaṅgā-Yamunā Valley, the Malwa Plateau, the Vindhya and Satpura Ranges of central India and the Chota Nagpur Plateau (Figure 2). The inclusion of these regions provides new areas of expansion and new resources that could be exploited in the localised economic systems.

Based on our understanding of the Localisation Era of the Indus Valley Tradition, we can define a vast crescent of agricultural and pastoral settlements extending from the Gaṅgā-Yamunā Doab, down through the Indus-Ghaggar-

Hakra Valley and around into Gujarat. The central regions of the Malwa Plateau, and the hilly jungle regions extending from the western Vindhyas to the Chota Nagpur Plateau, would have been only sparsely populated at the beginning of the Regionalisation Era of the Indo-Gangetic Tradition.

It is in this setting that we see the development of what is commonly referred to as the Painted Grey Ware (PGW) Culture (1200-800 B.C.) (Dikshit 1981, 1984; Mughal 1984, 1992) (Figure 12). The main settlements are located at the northern edge of this large crescent, along the northern Gangetic plain and down the Ghaggar-Hakra river, though there is some possibility of PGW expansion into the Malwa Plateau. Most scholars agree that the PGW represents an indigenous cultural development from local chalcolithic communities in the northern subcontinent and that it does not reflect an intrusive culture from the northwest. This interpretation is supported to some extent by the localised pattern of exchange that is documented for the preceding Punjab Phase.

The Northern Black Polished Ware (NBPW) culture (700-300 B.C.) (Roy 1983, 1986) is the term given to the next major cultural developmen (Figure 13). Although the PGW and the early NBPW can be considered as distinct phases within the Regionalisation Era, the present evidence suggests that they reflect an interconnected sequence of cultural changes that precede the development of the urban states in the Indo-Gangetic region. It is significant that the core area for the second urbanism was on the periphery of the regional polities remaining from the Localisation Era of the Indus Tradition.

During the Regionalisation Era, we see the gradual expansion of populations into new ecosystems, the introduction of new technologies, and the establishment of new economic networks. These various factors of environment, population, technology, and social organisation were all interrelated and the cumulative changes that occurred during this time fulfilled important preconditions that were necessary for the later establishment of an integrated state level society. A brief outline of the major preconditions and the ways in which they were fulfilled are presented below.

Precondition #1. *Diversity of the subsistence base and resource variability, which have the potential for the production of surplus.*

All of the major varieties of subsistence items and grains that became important during the subsequent phase of integration were already being cultivated during the Localisation Era of the Indus Valley Tradition. Nevertheless, a more complex process of seasonal agriculture and multicropping, using the recently exploited summer crops of sorghum, millet and rice, would have allowed the production of a considerable surplus (Weber 1991, 1992). This surplus could have been used for human consumption as well as for animal husbandry, resulting in changing patters of land use and possibly the development of more localised pastoralism. The use of summer or monsoon crops appears to have spread throughout

the northern subcontinent and allowed expansion into regions that may have been less habitable during the Harappan Period.

The copper resources of the Aravallis continued to be utilised, but there is little concrete evidence for tin bronzes either in the Copper Hoards (Agrawal 1974), or in the copper items from PGW sites (Agrawal 1971). Some tin bronzes are reported from the earlier peninsular sites of Jorwe, Nevasa and Navdatoli (possibly derived from trade with the Indus region), but it is important to note that no tin bronzes have been found at Ahar or Kayatha (Agrawal 1971). Such a long break in tin acquisition is important because it would reflect the lack of contact with the regions of Baluchistan and Northern Afghanistan, and the development of a distinctive copper technology that was not closely tied to the northwestern regions of the subcontinent.

In earlier models, the northwestern regions were the source of the so-called movements of Indo-Aryan speaking peoples. Yet, if there were such movements, why were the migrants not supplying one of the most important raw materials for bronze production, i.e. tin? This cannot be answered simply by saying that iron was replacing copper and bronze, because the prominent use of iron does not occur until much later, in the late NBP period, after the full establishment of the Integration Era of the Indo-Gangetic Tradition. While no bronzes of the late NBPW period have been analysed, it would not be surprising to see the reappearance of tin bronzes.

New resources that came to be exploited included iron and a variety of minerals that were not utilised during the Indus Valley Tradition. The major iron sources expoited during the PGW Phase would have been those in the northern Aravallis and close to the important sites of Mathura, Noh, Bairat, Indrapat (Delhi), etc. Later, during the early NBPW Phase, a second major source area was exploited in the Chota Nagpur Plateau and adjacent to the most important sites of the Middle and Lower Gaṅgā plain, namely Rajgir, Pataliputra, Champa, and so on (Chakrabarti 1977, 1984-85).

The other important minerals include various colours of banded and dendritic agates from the Vindhyas and the Chota Nagpur Plateau, and gemstones such as garnet, amethyst, moonstone, diamond, emerald and ruby. There are two major sources of gemstones that became important; one was the Deccan plateau of peninsular India and the other the mountainous valleys north of Taxila.

Marine shell, particularly the conch shell or *Turbinella pyrum*, would have been collected in the coastal regions of Kutch, or the Makran coast near modern Karachi. In the NBPW phase this species of marine shell becomes quite common at inland sites in the Gangetic region, and even as far north as Taxila. It was used for making ornaments, trumpets and ritual libation vessels (Kenoyer 1983).

The presence of alternative sources for raw materials that were important for economic exchange and the manufacture of status objects was undoubtedly a significant stimulus for market competition and control.

Precondition #2. *The development of social and economic interaction networks between major ecosystems and resource areas.*

During the PGW and early NBPW Phases we see the establishment of regional interaction networks within what would later become the core area of urbanism. The first stage of expansion or consolidation was seen in the distribution of PGW sites throughout the northern Gaṅgā-Yamunā Doab, and the extension into the central Indus Valley along the bed of the Ghaggar-Hakra (ancient Saraswati) River. There is also an expansion of PGW sites into the Middle Gaṅgā Valley and the western Vindhyan region, around Ujjain (Erdosy 1987, 1988; Lal 1985). During the following NBPW phase the expansion continues to the east as far as the Chota Nagpur Plateau, to the northwest as far as Taxila, and to the southwest across the Malwa Plateau to the coastal regions of Gujarat (Roy 1983 1986). The coastal contacts during the NBPW Phase are documented by the presence of NBPW at sites in Gujarat as well as by the presence of marine shell ornaments and complete conch shells (*T. pyrum*) at inland sites (Kenoyer 1983).

It is important to understand that these trade networks add to, and build from, the earlier interaction networks of the Indus Valley Tradition. As such, they undoubtedly incorporate many of the remnant polities and economic structures of the latter's Localisation Era.

Precondition 3. *Technological capability to fill specific needs of urban and state-level society.*

With the expansion into new regions and the acquisition of new resources it was necessary to develop appropriate technologies that would efficiently transform resources into commodities. The earlier theories about the spread of iron technology and the need to clear vast tracts of forests to inhabit the Gaṅgā-Yamunā region must be discarded in the face of recent studies, and consequently the major argument for the spread of iron technology must be reevaluated. Iron objects have been found in the later levels of PGW sites (800 B.C.) (Lal 1979-80) and throughout the early NBPW phase, but the majority are objects of adornment (bangles, pins), along with some weapons (Lal 1985, 1986).

Other scholars have argued that the development of iron technology in peninsular India may represent an indigenous process and not be the result of diffusion, through the northwest, from West Asia (Chakrabarti 1984-85; Shaffer 1993). The lack of evidence for economic connections during the preceding Localisation Era would support this interpretation. There really is no need for direct diffusion of iron technology because the artisans producing copper objects

were undoubtedly quite familiar with the properties of iron which would have been present in the slags of their copper furnaces. It is quite possible that the need for iron was stimulated by the need for new metal ornaments and harder tools, since tin for bronze production was not available.

Other technologies that appear to have been developing are associated with the need for status items such as beads and other ornaments (Bharadwaj 1979, 1985). New techniques for colouring and bleaching beads with black and white designs were developed. The earliest use of the diamond drill-bit is evidenced in the NBPW period sites of Gujarat (Kenoyer, Bhan, et al. 1993). At sites such as Taxila and Kausambi we see evidence for the faceting of translucent stones, which in turn stimulated the use of a new range of minerals for producing high status objects. Faience manufacture continued to be practiced, but alongside we see the development of a vigorous glass technology, used for the production of bangles, beads, ear-discs, seals and containers (Singh 1989).

Shell working technology shows important continuities with the earlier Indus Tradition, but new styles of ornaments and new decorative motifs become widespread (Kenoyer 1983). Ceramic technology became highly specialised, first in the production of grey ware ceramics and then in the famous black polished wares. While there has been no concerted study of the manufacturing centres for PGW and NBPW ceramics, it is not unlikely that regional production centres will be discovered, as these techniques required high temperature kilns and skilled artisans.

Water management for agriculture and drinking water is reflected in the construction of numerous wells and, in some sites (e.g. Śringaverpur), massive tanks for capturing water at the high flood levels (Nagaraja Rao 1985: 91-92).

The technology of war and the construction of massive fortified settlements is not evidenced during the PGW Phase, but it becomes more apparent in the early NBPW Phase. Shaffer (1993) has tried to compare the number of weapons found from specific sites of the Indus Tradition and compare them to those found in the sites of the NBPW Phase. While there is undoubtedly a sampling problem, there is a definite increase in the amount of weapons found in the latter. When combined with the evidence for massive walls, gateways and towers, and thousands of sling stones, there is little doubt that military technology was on the upswing. This interpretation is further supported by the literary accounts for this period, including the Epics of the Ramayana, the Mahabharata and the later Buddhist texts.

Precondition 4. *Differentiation in status on the basis of access to essential resources and the ability to control the distribution of essential resources.*

Status differentiation based on access to essential resources results from cultural choices about which resources are necessary for subsistence on the one hand, and for ideological purposes of social identity and value on the other. The

new categories of raw materials that were being used, and the new technologies that developed to produce iron, glass and coloured stone objects, demonstrate that such cultural choices were being made.

The development of major cities at the important crossroads leading from the resource areas to the agricultural hinterland demonstrate the fact that these resources were being heavily exploited. Textual evidence from the epics, the Śāstras and various Buddhist texts outline the complex manner in which specific resources were controlled both directly and indirectly by the state (Prasad 1984; Roy 1986). On the basis of excavations at later sites and literary texts we know that raw materials, such as shell, stone and ores were being brought from distant resource areas and worked in the major urban settlements. Furthermore, hierarchies of specialists and administrative structures were developed to monitor and control production and distribution. (Thakur 1972)

The presence of fine pottery in contrast to plain wares indicates a hierarchy in materials used to produce what are equally funtional vessels (Roy 1983). The relatively low percentage of fine painted grey wares and polished black wares can be interpreted as the restricted use of certain varieties of vessels. Although there have been no detailed studies of the ornaments or tools, it is not unlikely that similar patterns will be seen in beads, bangles and other objects.

Most important is the reappearance during the early NBPW ware phase of writing, weights and measures. While there is still no convincing evidence to indicate a continuity between the Indus script and the first *Brahmi lipi*, the connection between the Indus and Early Historic weight systems seems quite clear (Mainkar 1984; Srinivasan 1979). The latter is also used in the punch-marked coins that become common in the NBP ware phase (Prasad 1984; Singh 1986); the weight of the coins corresponds to the system described in the Arthaśāstra of Kautilya (Mainkar 1984).

1 gunja (*Abrus precatorius* seed)	= .109 grams		
8 gunja	= the smallest Indus weight of .871 grams		
32 gunja	= the 4th Indus weight category of 3.4 grams		
	-------------------		
1 coin	= 32 (4 x 8) gunja	= 3.4 grams	= 1 dharana
10 dharana	= 320 gunja	= 34.8 grams	= 1 pala

The correspondence of the two weight systems could simply mean that the distinctive red and black seed, that may have been used by the Indus Tradition for defining weights, was selected independently at a later time for the same purpose. On the other hand, given the continuity in technologies such as agate bead making, faience working and copper metalurgy, it is more probable that the use of the seed as a weight category continued along with other aspects of technology and regional trade.

The establishment of a monetary system and the increased use of seals and other insignia demonstrate the capability to control the access and distribution of essential resources, both subsistence items as well as items of socio-ritual status. It is important to note however, that the use of writing does not first appear in association with coins or with seals used for trade, but is seen in edicts aimed at establishing a new social order in defiance of the Brāhmaṇical monopoly on ritual and technical knowledge. Correspondingly, the disappearance of writing at the end of the Indus Tradition in the north can perhaps be correlated to an increase in the dominance of Vedic ritual elites, who are referred to as brahmans.

The ultimate ability to reinforce the social and economic order is reflected in the massive fortifications around the NBPW phase sites and an increase in iron weapons. The most convincing evidence for conflict and aggression is seen in the Epic and Shastric literature, where there are also references to the use of espionage and other methods of observation.

Other aspects of status differentiation can be documented in the organisation of settlements into different sectors. Although relatively little horizontal excavation has been conducted at key sites, ritual structures and what have been called palace areas have been identified. Further evidence from literary texts indicate that the settlements were divided into sectors according to the system of *varṇas* and occupational specialisation.

Discussion and Conclusion

At the end of the Regionalisation Era the foundations for a new phase of urbanism had been established and we see the emergence of numerous competing polities and city states throughout the Indo-Gangetic Region, eventually extending to Gujarat and the Deccan (Figure 14). This period of transition in the Gangetic region can be dated from around 1300/1000 B.C. to approximately 600/300 B.C., depending on how one defines the beginning of the Integration Era. Based on the archaeological evidence, it is clear that this period of more than 700 years was not a chaotic "Dark Age", but rather a time of reorganisation and expansion (Shaffer 1993). The data presented above, even though still incomplete, clearly demonstrate that no model of diffusion, migration or multiple waves can be used to explain the transition between the Indus Valley Tradition and the Indo-Gangetic Tradition.

The process of transition can be summarised as follows. First, the Harappan socio-ritual elites had lost their legitimation, and the vast regions that had once been integrated were split into different localised polities. Second, other cultural groups in the Gaṅgā-Yamunā Doab, who had been on the periphery of the Indus Tradition, began to build up regional networks of alliances, probably

based on kin related hereditary elites. These elites controlled land and cattle and eventually specific villages became centres of ritual and political power. Some of these villages began to control the trade of important resources such as iron and other minerals as well as agricultural produce. Over time we see the emergence of competing towns that become the capitals of new regional polities that are referred to as *janapada*. These *janapadas* were eventually integrated through political, economic and military action under Magadhan, and eventually Mauryan, rule.

The change of focus from the Indus to the Gangetic plains is a pattern that can be explained through core-periphery relations. A new social hierarchy based on a different set of belief systems, ritual practices, and language could not have developed within the surviving, but weakened infrastructure of Late Harappan towns and cities. On the other hand, the peripheral regions of the Gaṅgā-Yamunā and eventually the Middle to Lower Gaṅgā provided the necessary setting for the establishment of a new urban infrastructure. After the Gangetic cities had become strong they expanded trade networks back towards the Indus and across the Malwa plateau (Figure 15). The latter was not an important trade route until we see the establishment of cities in the Middle and Lower Gaṅgā, that needed to have more direct access to the important coastal cities of Gujarat and the sea routes to Arabia and the Horn of Africa.

The later historical events, the organisation of these cities and most importantly the socio-political, religious and linguistic aspects of the Indo-Gangetic Tradition are relatively well known (Prasad 1984; Roy 1983; Scharfe 1989; Thapar 1984). However, I feel that the processes through which the Indo-Gangetic Tradition evolves have been poorly understood and inadequately studied. The archaeological evidence can no longer be ignored and new models for cultural, religious and linguistic change need to be developed through a dialogue between linguists, archaeologists and historians.

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1989 *Ancient Indian Glass: Archaeology and Technology.* Delhi, Parimal Publications.

Srinivasan, S.
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1972 A study of barter and exchange in ancient India. *Journal of the Economic and Social History of the Orient* 15,3: 297-315.

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1986 *Recent Archaeological Discoveries in India.* Paris, UNESCO.

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1984 *From Lineage to State: Social Formations in the Mid-First Millennium B.C. in the Gaṅgā Valley.* Bombay, Oxford University Press.

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1940 *Excavations at Harappa.* Delhi, Government of India Press.

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List of Figures

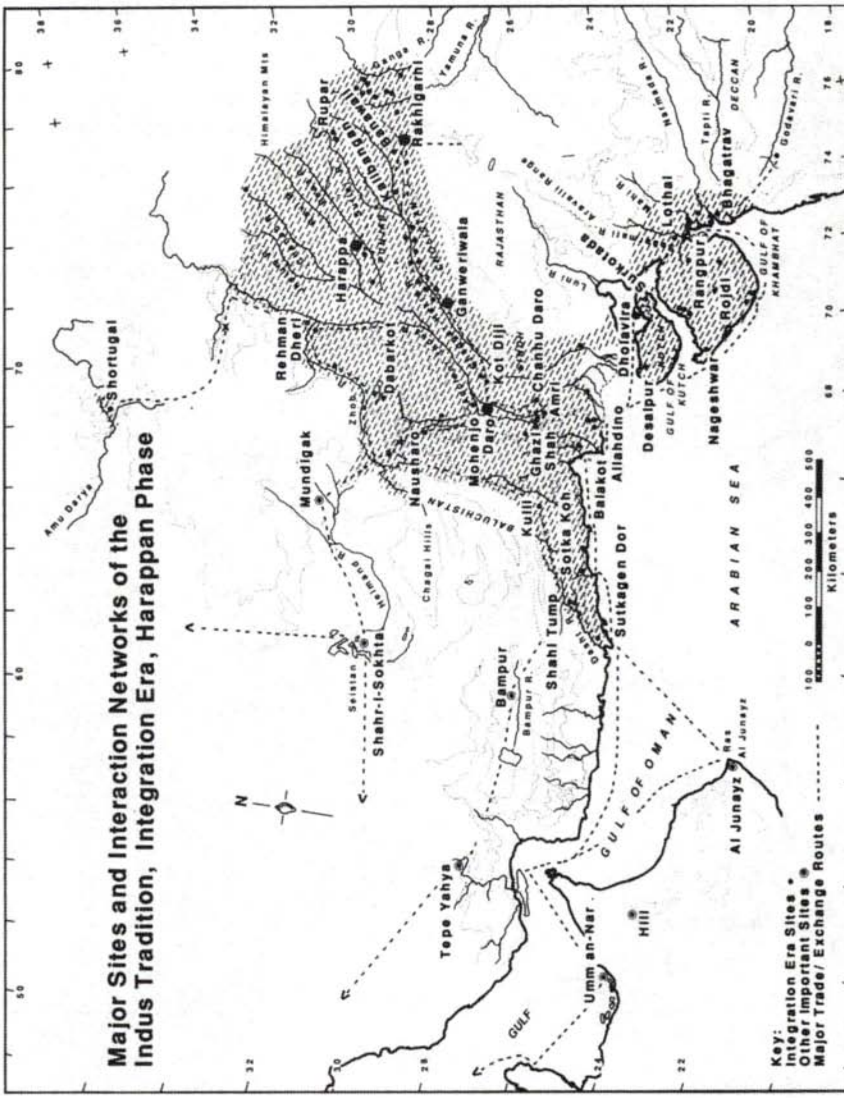

Major Sites and Interaction Networks of the
Indus Tradition, Integration Era, Harappan Phase
Shortugai
Amu Darya
Mundigak
Shahr-i-Sokhta
Seistan
Helmand R.
Chagai Hills
Tepe Yahya
Bampur
Bampur R.
Shahi Tump
Sotka Koh
Sutkagen Dor
Kulli
Nausharo
Mohenjo Daro
Chanhu Daro
Amri
Balakot
Allahdino
Kot Diji
Dabarkot
Rehman Dheri
Harappa
Ganweriwala
Kalibangan
Banawali
Rakhigarhi
Rupar
Yamuna R.
Ganga R.
Himalayan Mts
RAJASTHAN
BALUCHISTAN
Zhob
Surkotada
Dholavira
Desalpur
GULF OF KUTCH
Nageshwar
Rangpur
Rojdi
Lothal
Bhagatrav
GULF OF KHAMBHAT
Narmada R.
Tapti R.
Godavari R.
DECCAN
Aravalli Range
Luni R.
ARABIAN SEA
GULF OF OMAN
GULF
Umm an-Nar
Hili
Al Junayz
Ras Al Junayz
Kilometers
Key:
Integration Era Sites
Other Important Sites
Major Trade/ Exchange Routes

Figure 1

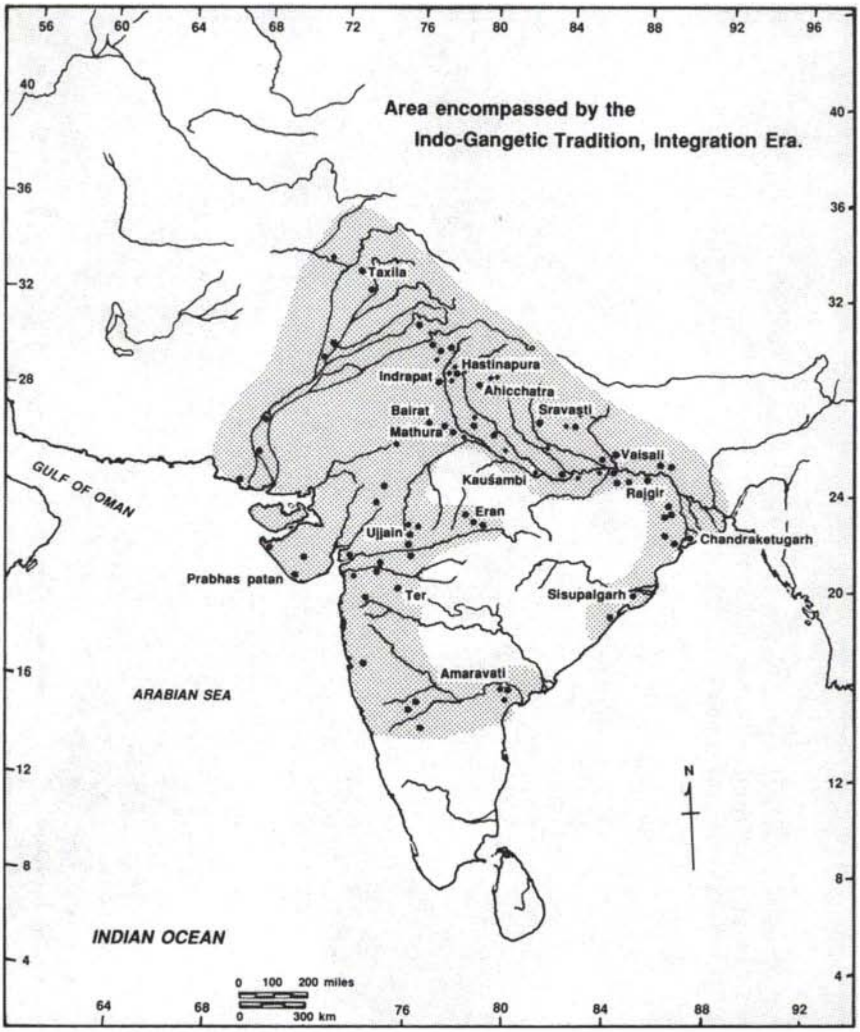

Area encompassed by the
Indo-Gangetic Tradition, Integration Era.
Taxila
Hastinapura
Indrapat
Ahicchatra
Bairat
Mathura
Sravasti
Vaisali
Kauśambi
Rajgir
Eran
Ujjain
Chandraketugarh
Prabhas patan
Ter
Sisupalgarh
Amaravati
GULF OF OMAN
ARABIAN SEA
INDIAN OCEAN
N
0 100 200 miles
0 300 km

Figure 2

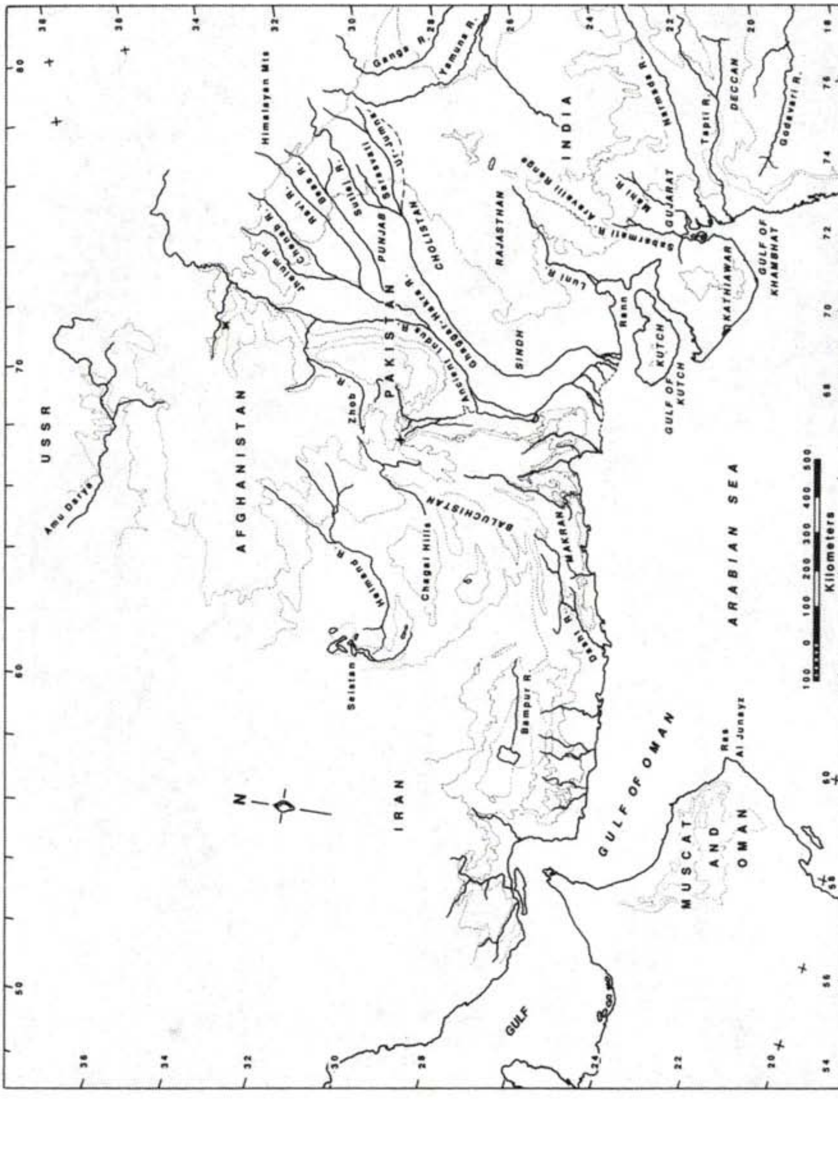

USSR
Amu Darya
AFGHANISTAN
IRAN
PAKISTAN
INDIA
Himalayan Mts
Jhelum R.
Chenab R.
Ravi R.
Beas R.
Sutlej R.
Ganga R.
Yamuna R.
PUNJAB
CHOLISTAN
RAJASTHAN
Aravalli Range
SINDH
Luni R.
Rann
KUTCH
GULF OF KUTCH
KATHIAWAR
GULF OF KHAMBHAT
GUJARAT
Sabarmati R.
Mahi R.
Narmada R.
Tapti R.
DECCAN
Godavari R.
Zhob R.
Ancient Indus R.
Ghaggar-Hakra R.
BALUCHISTAN
Chagai Hills
Helmand R.
Seistan
MAKRAN
Dasht R.
Bampur R.
GULF OF OMAN
ARABIAN SEA
MUSCAT AND OMAN
Ras Al Junayz
GULF
Kilometers

Figure 3

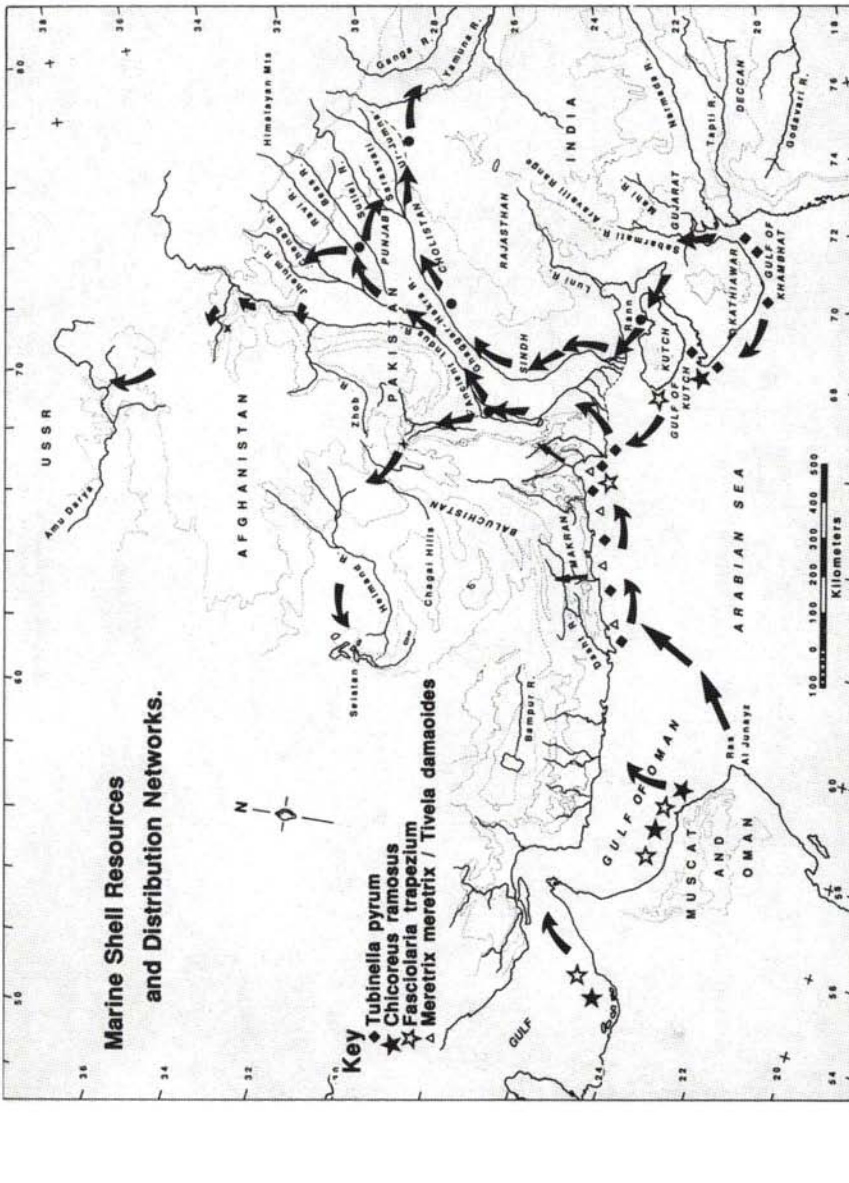

Marine Shell Resources
and Distribution Networks.
Key
Tubinella pyrum
Chicoreus ramosus
Fasciolaria trapezium
Meretrix meretrix / Tivela damaoides
Kilometers
ARABIAN SEA
GULF OF OMAN
MUSCAT AND OMAN
AFGHANISTAN
PAKISTAN
INDIA
USSR
BALUCHISTAN
SINDH
PUNJAB
CHOLISTAN
RAJASTHAN
GUJARAT
KUTCH
KATHIAWAR
GULF OF KUTCH
GULF OF KHAMBHAT
DECCAN
MAKRAN
GULF

Figure 4

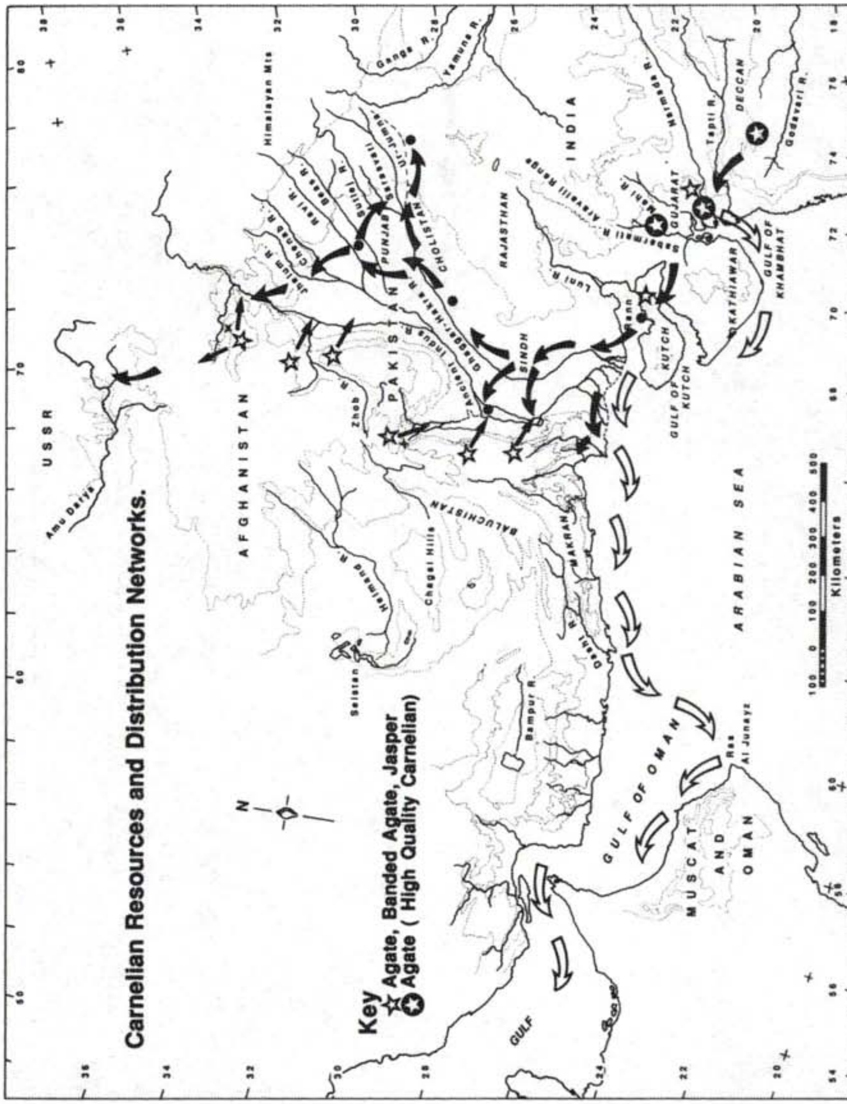

Carnelian Resources and Distribution Networks.
Key
Agate, Banded Agate, Jasper
Agate (High Quality Carnelian)
ARABIAN SEA
GULF OF OMAN
AFGHANISTAN
PAKISTAN
INDIA
Kilometers

Figure 5

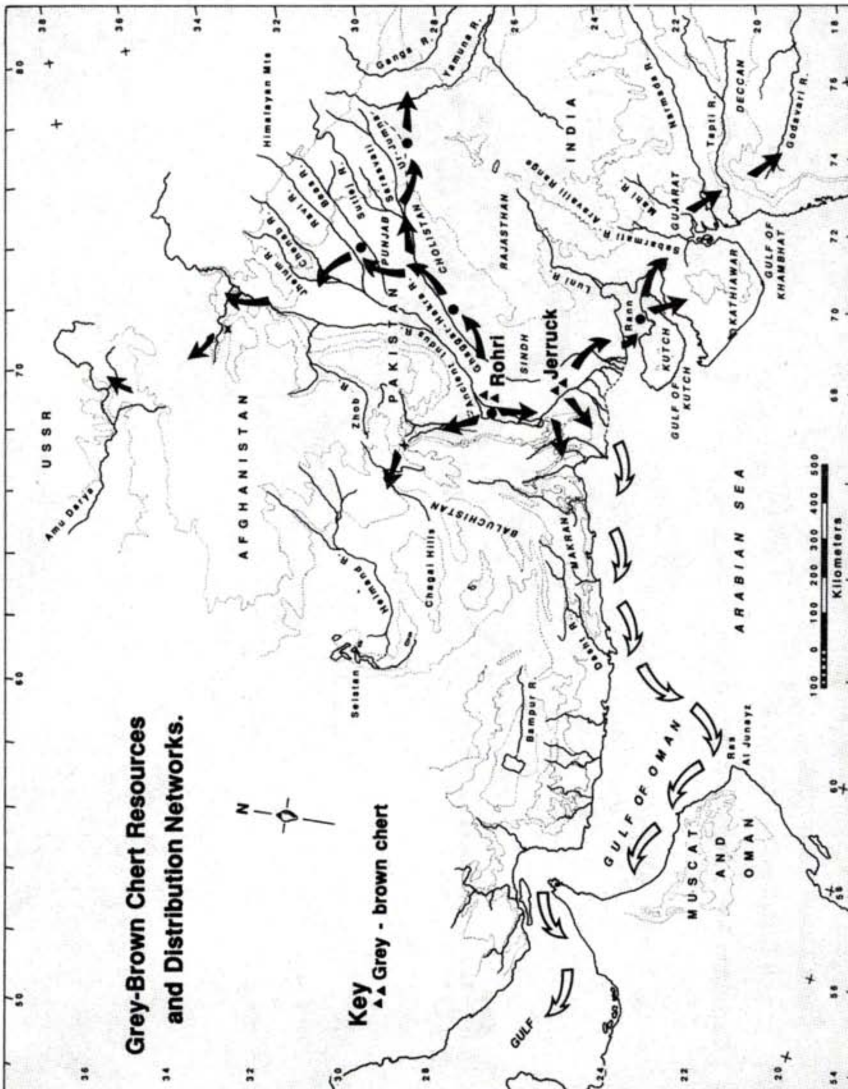

Grey-Brown Chert Resources
and Distribution Networks.
Key
Grey - brown chert
N
Rohri
Jerruck
USSR
AFGHANISTAN
PAKISTAN
INDIA
SINDH
RAJASTHAN
PUNJAB
CHOLISTAN
BALUCHISTAN
MAKRAN
KUTCH
GUJARAT
KATHIAWAR
DECCAN
GULF OF KUTCH
GULF OF KHAMBHAT
GULF OF OMAN
MUSCAT AND OMAN
ARABIAN SEA
GULF
Amu Darya
Himalayan Mts
Ganga R.
Yamuna R.
Jhelum R.
Chenab R.
Ravi R.
Beas R.
Sutlej R.
Saraswati
Ghaggar-Hakra R.
Ancient Indus R.
Zhob R.
Chagai Hills
Helmand R.
Seistan
Bampur R.
Dasht R.
Ras Al Juneyz
Luni R.
Aravalli Range
Sabarmati R.
Mahi R.
Narmada R.
Tapti R.
Godavari R.
Rann
Kilometers
100 0 100 200 300 400 500

Figure 6

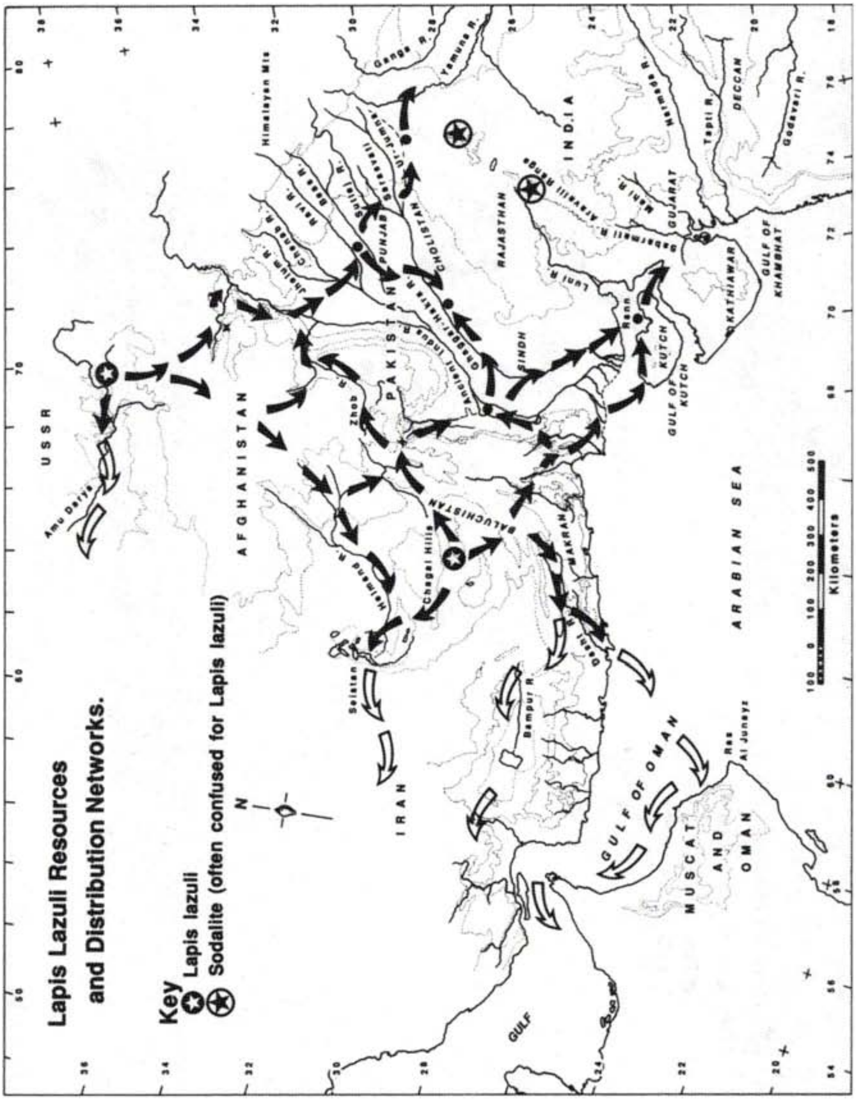

Lapis Lazuli Resources
and Distribution Networks.
Key
Lapis lazuli
Sodalite (often confused for Lapis lazuli)
USSR
Amu Darya
AFGHANISTAN
IRAN
PAKISTAN
INDIA
BALUCHISTAN
Chagai Hills
MAKRAN
Seistan
Helmand R.
Zhob
SINDH
PUNJAB
CHOLISTAN
RAJASTHAN
Himalayan Mts
Jhelum R.
Chenab R.
Ravi R.
Beas R.
Sutlej R.
Ganga R.
Yamuna R.
Luni R.
Aravalli Range
GUJARAT
KUTCH
GULF OF KUTCH
KATHIAWAR
GULF OF KHAMBHAT
Narmada R.
Tapti R.
DECCAN
Godavari R.
ARABIAN SEA
GULF OF OMAN
MUSCAT AND OMAN
Ras Al Juneyz
Bampur R.
GULF
Kilometers

Figure 7

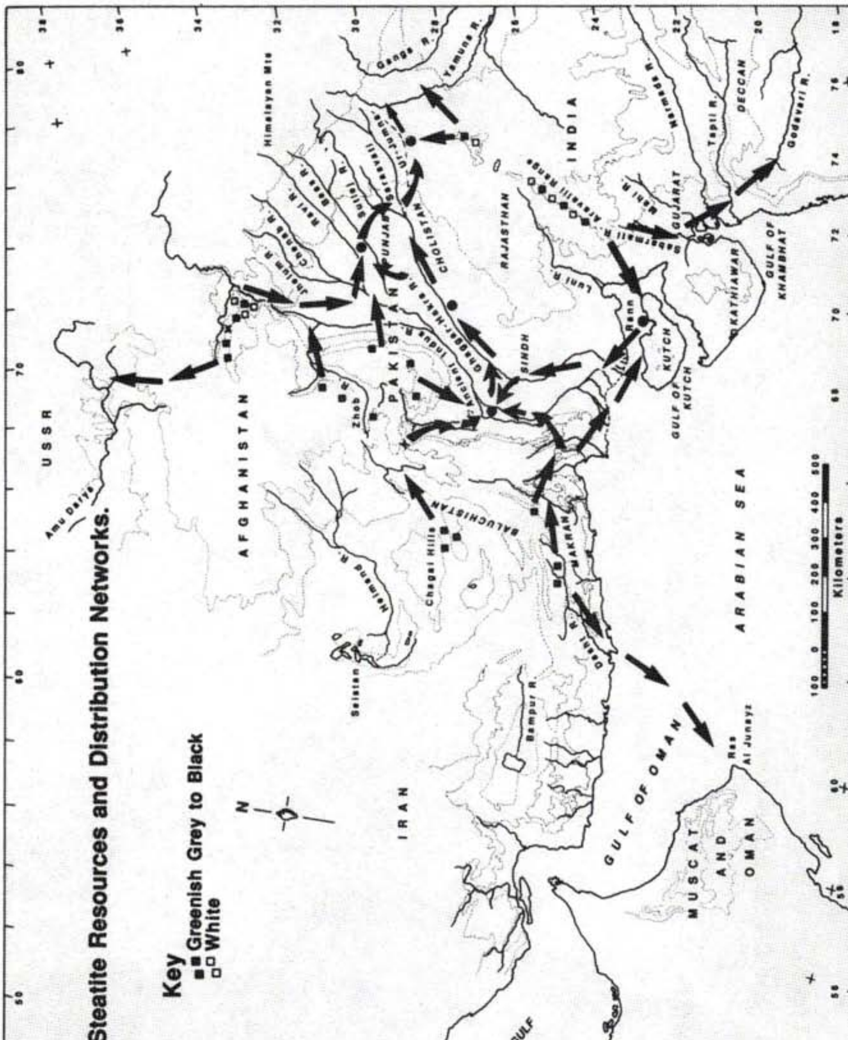

Steatite Resources and Distribution Networks.
Key
Greenish Grey to Black
White
USSR
AFGHANISTAN
IRAN
PAKISTAN
INDIA
BALUCHISTAN
MAKRAN
SINDH
PUNJAB
CHOLISTAN
RAJASTHAN
GUJARAT
KUTCH
KATHIAWAR
DECCAN
GULF OF KUTCH
GULF OF KHAMBHAT
ARABIAN SEA
GULF OF OMAN
MUSCAT AND OMAN
GULF
Amu Darya
Helmand R.
Seistan
Chagai Hills
Zhob
Himalayan Mts
Ganges R.
Yamuna R.
Godavari R.
Tapti R.
Narmada R.
Luni R.
Aravalli Range
Bampur R.
Dasht R.
Ras Al Junayz
Kilometers

Figure 8

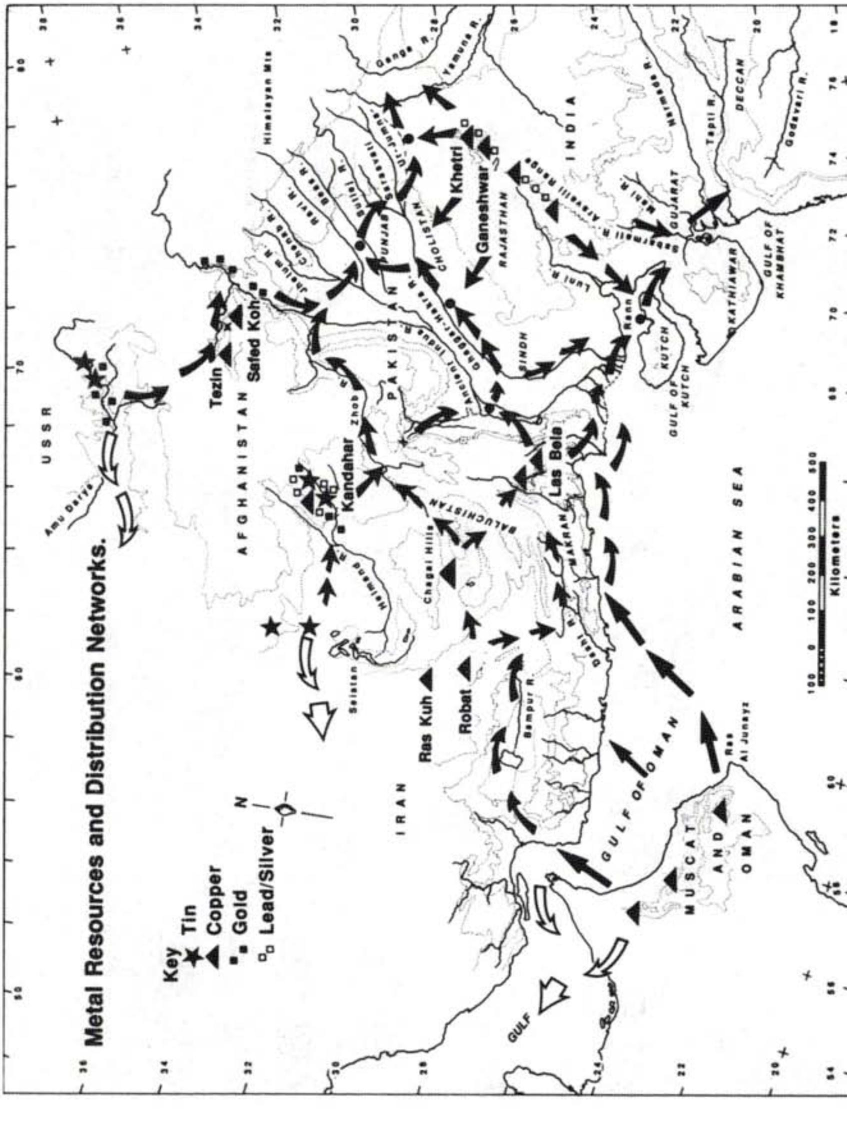

Metal Resources and Distribution Networks.
Key
Tin
Copper
Gold
Lead/Silver
N
USSR
Amu Darya
AFGHANISTAN
Tezin
Safed Koh
Kandahar
Himalayan Mts
PAKISTAN
INDIA
IRAN
Seistan
Ras Kuh
Robat
Chagai Hills
BALUCHISTAN
MAKRAN
Las Bela
SINDH
PUNJAB
CHOLISTAN
RAJASTHAN
Khetri
Ganeshwar
KUTCH
GULF OF KUTCH
GUJARAT
KATHIAWAR
GULF OF KHAMBHAT
DECCAN
GULF OF OMAN
MUSCAT AND OMAN
ARABIAN SEA
GULF
Kilometers

Figure 9



Figure 10a

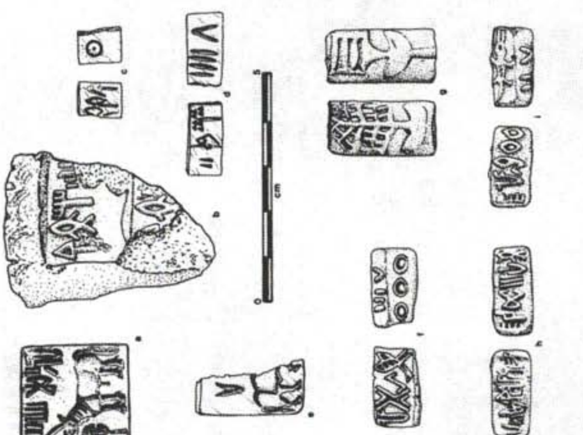


Figure 10b

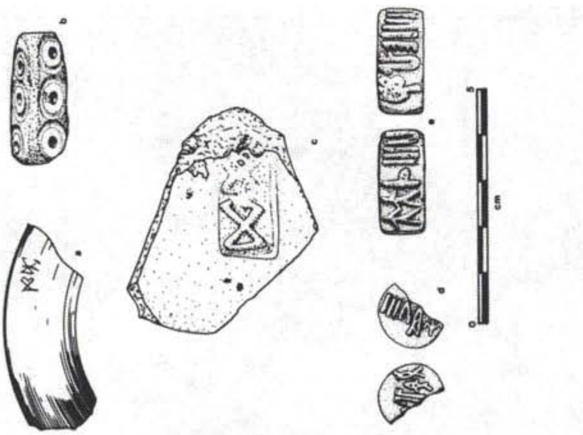


Figure 10c

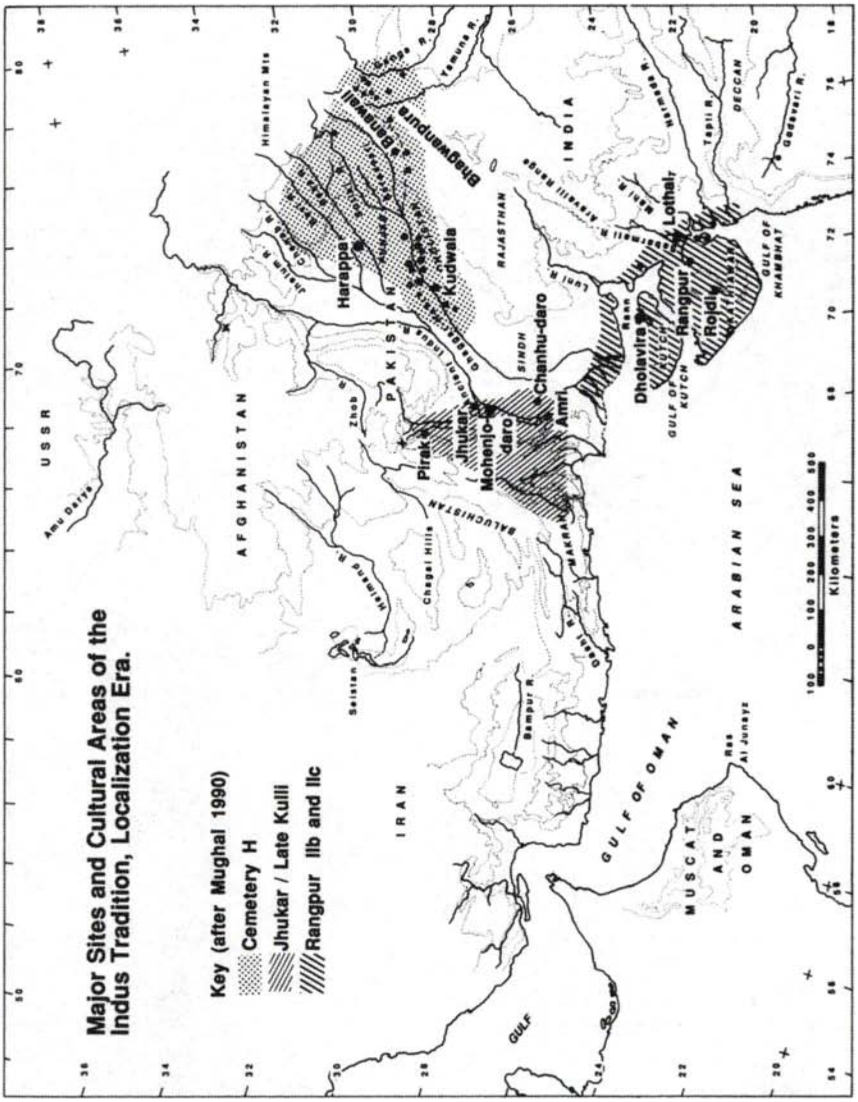
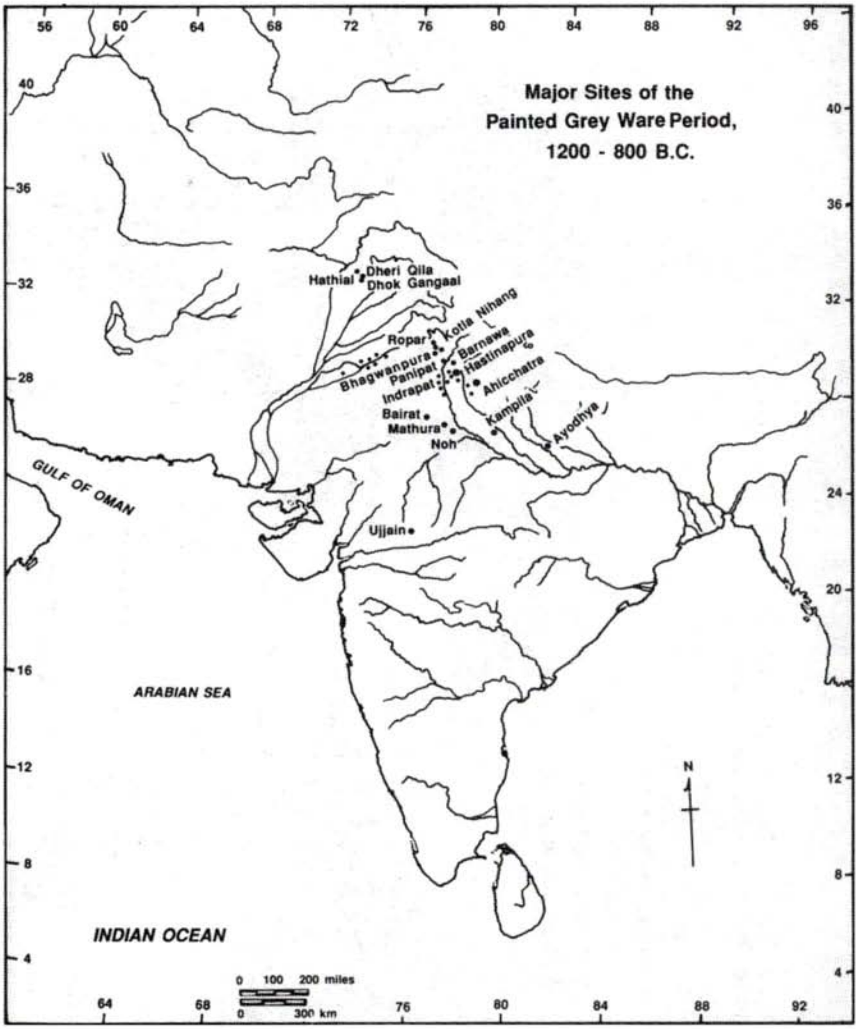

Major Sites and Cultural Areas of the Indus Tradition, Localization Era.
Key (after Mughal 1990)
Cemetery H
Jhukar / Late Kulli
Rangpur IIb and IIc
Harappa
Kudwala
Bhagwanpura
Banawali
Pirak
Jhukar
Mohenjo-daro
Chanhu-daro
Amri
Dholavira
Lothal
Rangpur
Rojdi
Kilometers
U S S R
A F G H A N I S T A N
P A K I S T A N
I N D I A
I R A N
BALUCHISTAN
SINDH
RAJASTHAN
DECCAN
MUSCAT AND OMAN
ARABIAN SEA
GULF OF OMAN
GULF OF KUTCH
GULF OF KHAMBHAT
GULF
Himalayan Mts
Amu Darya
Chagai Hills
Seistan
Zhob
Bampur R.
Yamuna R.
Narmada R.
Tapti R.
Godavari R.
Ras Al Junayz

Figure 11



Major Sites of the
Painted Grey Ware Period,
1200 - 800 B.C.
Hathial
Dheri Qila
Dhok Gangaal
Ropar
Kotla Nihang
Barnawa
Hastinapura
Bhagwanpura
Panipat
Indrapat
Ahicchatra
Bairat
Mathura
Noh
Kampila
Ayodhya
Ujjain
GULF OF OMAN
ARABIAN SEA
INDIAN OCEAN
N
0 100 200 miles
0 300 km

Figure 12

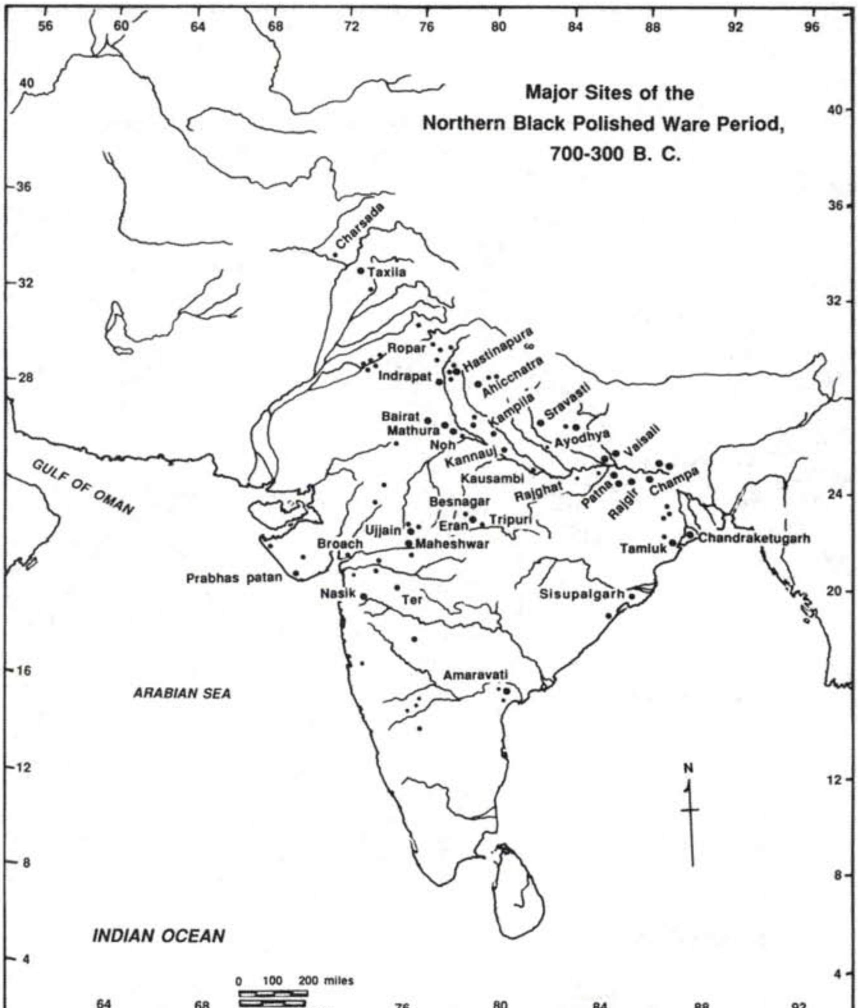

Major Sites of the
Northern Black Polished Ware Period,
700-300 B. C.
Charsada
Taxila
Ropar
Hastinapura
Indrapat
Ahiccnatra
Kampila
Sravasti
Bairat
Mathura
Noh
Ayodhya
Vaisali
Kannauj
Kausambi
Rajghat
Patna
Rajgir
Champa
Besnagar
Eran
Tripuri
Ujjain
Maheshwar
Broach
Tamluk
Chandraketugarh
Prabhas patan
Nasik
Ter
Sisupalgarh
Amaravati
GULF OF OMAN
ARABIAN SEA
INDIAN OCEAN
N
0 100 200 miles
0 300 km

Figure 13

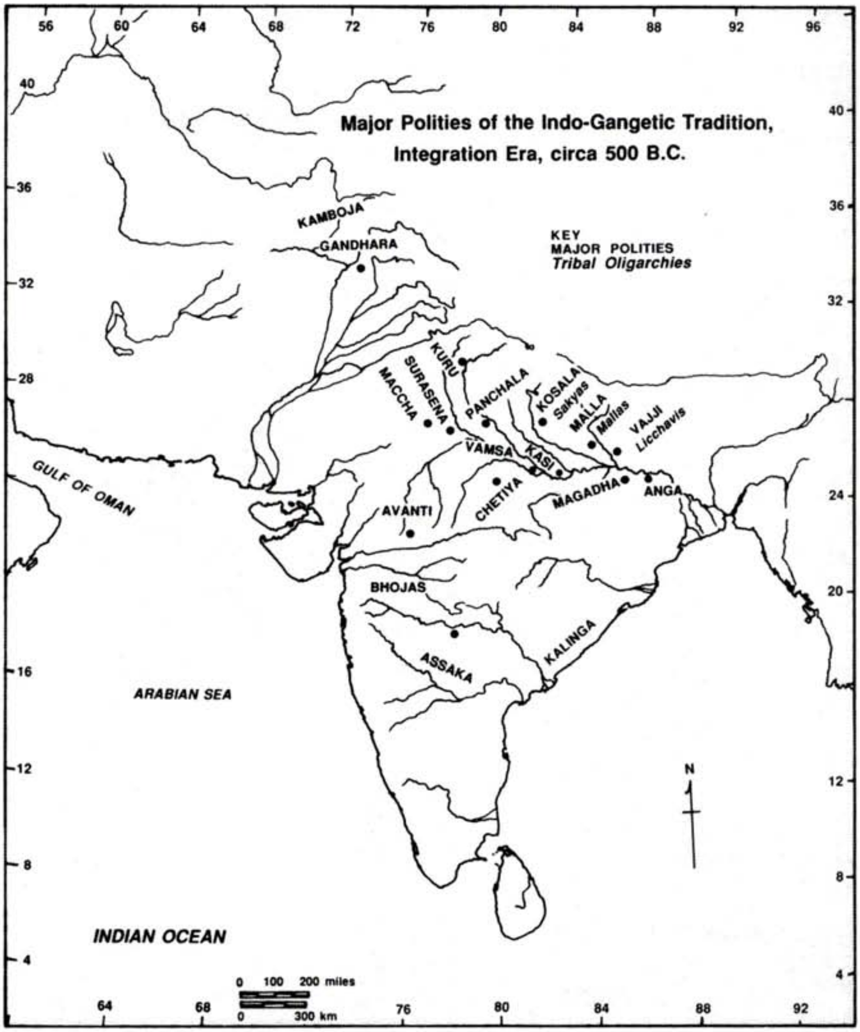

Major Polities of the Indo-Gangetic Tradition,
Integration Era, circa 500 B.C.
KEY
MAJOR POLITIES
Tribal Oligarchies
KAMBOJA
GANDHARA
KURU
SURASENA
MACCHA
PANCHALA
KOSALA
Sakyas
MALLA
Mallas
VAJJI
Licchavis
VAMSA
KASI
CHETIYA
MAGADHA
ANGA
AVANTI
BHOJAS
ASSAKA
KALINGA
GULF OF OMAN
ARABIAN SEA
INDIAN OCEAN
N
0 100 200 miles
0 300 km

Figure 14

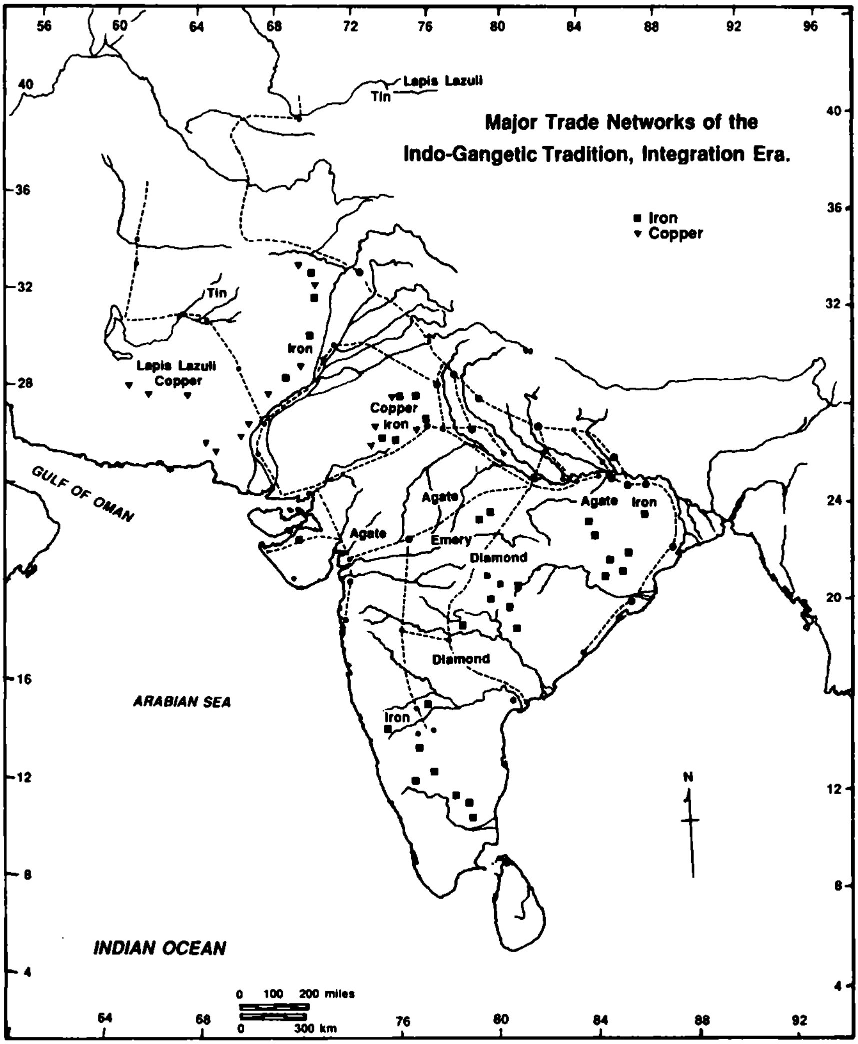

Major Trade Networks of the
Indo-Gangetic Tradition, Integration Era.
Iron
Copper
Lapis Lazuli
Tin
Tin
Lapis Lazuli
Copper
Iron
Copper
Iron
Agate
Agate
Emery
Diamond
Agate
Iron
Diamond
Iron
GULF OF OMAN
ARABIAN SEA
INDIAN OCEAN
N
0 100 200 miles
0 300 km

Figure 15

Franklin C. Southworth

11. Reconstructing social context from language: Indo-Aryan and Dravidian prehistory

1. Introduction

Discussions of linguistic reconstruction among linguists tend to focus on technical details of linguistic form and structure, with the prehistoric dimension often left implicit. In an interdisciplinary context like the present one, it will be useful to make explicit some of the important assumptions that historical linguists make about the relationships between linguistic evidence and prehistory, before discussing specific inferences about the prehistory of the Indo-Aryan and Dravidian languages.[1]

To what extent can linguistic methods provide information about ancient social identities and relationships? Using similarities in word form and grammatical structure, comparative-historical linguistics can show various kinds of linkages between different periods of time, different texts and different regions. These linkages can be used to infer the existence of ancient speech communities (see below for definition), their chronological and spatial limits, the extent and types of contact among them and their internal linguistic differentiation. The meanings of ancient forms (whether reconstructed or textually attested) can provide information about the content of cultures associated with these speech communities. As the following discussion will make clear, however, linguistic evidence does not permit us to make assumptions about the extent to which

[1] The data which form the basis for the conclusions presented here have appeared in a number of papers, previously published and forthcoming (see References under the author's name). Only the minimal essential facts will be provided directly here. Research on South Asian prehistory was carried out during 1975-76 and 1980-82 under grants from the American Council of Learned Societies, the American Institute of Indian Studies and the Smithsonian Institution. The following abbreviations are used in this text: CDIAL: See Turner 1966 in Bibliography; CDr: Central Dravidian; DED: See Burrow and Emeneau 1961 in Bibliography; MIA: Middle Indo-Aryan; OIA: Old Indo-Aryan; PDr: Proto-Dravidian; PED: Proto-Elamo-Dravidian; SDr: Southern Dravidian; Skt: Sanskrit.

membership in a speech community coincides with cultural, racial, or ethnic identity.

1.1. Genetic relationships and proto-speech communities

When we say that two languages are (genetically) related, we mean that we consider them to be historical continuations of a single earlier language, spoken among the members of a single earlier speech community. In order to demonstrate such a relationship we must show shared inheritances between the languages, that is, it must be shown that there is a sufficient number of phonetic-semantic resemblances in their vocabularies to eliminate the possibilities of (a) chance resemblance[2] and (b) diffusion of vocabulary (either between the languages, or from another source).[3] What constitutes a sufficient number? There may be little consensus on this, but there are quite a number of cases about which there is no dispute. Furthermore, it is clear that the quality of the shared items is as important as the quantity. Brahui shares just over 300 lexical items with the rest of Dravidian (and not all of these are unquestioned cognates), but the relationship of Brahui to Dravidian is not doubted by serious scholars nowadays.[4]

Thus when we say that Tamil, Telugu, Toda, Kolami, Gondi, Malto, Brahui, etc. are related, we are saying that we consider it proven that there was at some time in the past a single speech community (which we usually call "Proto-Dravidian"), and that each of the modern languages represents a historical continuation of some portion of that earlier community - since we know of no other circumstance which could give rise to the linguistic similarities among these languages.

What then is this "speech community" whose existence we have inferred? The linguist Leonard Bloomfield, one of the first to use the term, gave the following definitions: (1) "a group of people who use the same system of speech-signals" (Bloomfield 1933: 29), (2) "a group of people who interact by means of speech" (Bloomfield 1933: 42). While not exactly identical, these definitions fo-

---

[2] For example, the resemblances between Tamil *oṉṉu* "one", *eṭṭu* "eight" and their English counterparts do not constitute sufficient evidence to support the assumption of a genetic relationship between Tamil and English, and thus are assumed to be chance resemblances. (The antiquity of the words in question in Indo-European, on the one hand, and Dravidian, on the other, shows the impossibility of assuming them to have been borrowed from either language to the other.)

[3] Thus the existence of words like *skūl* "school", *roḍ* "road", or *bas* "bus" in Malayalam, Marathi, Hindi-Urdu, Bangla, etc. does not provide evidence for a genetic relationship among them.

[4] Though in this case the number of items is on the low side, the acceptance of Brahui as a member of the Dravidian family rests on the presence of words like personal pronouns, interrogatives, a few kin terms, verbs denoting basic concepts such as "be", "burn", "sleep", other basic non-cultural terms such as "water" and "milk", as well as grammatical items such as negative verbal suffixes and nominal suffixes (e.g. plural, objective case). (See Southworth forthcoming: Chapter 1.22A).

cus on verbal interaction as the defining criterion. In historical studies we must be careful not to infer anything beyond that. We cannot presume that the speech community is necessarily coextensive with any particular ethnic or racial group, or was necessarily so at any time, nor can we presume that all of the individuals who made up this speech community were necessarily "native speakers" (in whatever sense this term is used) of the reconstructed language. As Hymes (1968: 29 ff.) has pointed out, the boundaries of ethnic, linguistic, and intelligibility groupings may overlap: the same cultural unit may include groups speaking different languages, and the same language (or similar and mutually intelligible languages) may be used by different cultural groups.[5] Furthermore, language alone is not a useful criterion even for identifying communicative groups, since communication depends not only on the forms of language but also on the rules for the use and interpretation of speech, and often these rules involve different variants in different localities.[6]

Thus for example, if we speak of an "English" speech community in the contemporary world, we must recognise that this is a communicative grouping only to the extent that some English speakers in different parts of the world can, say, follow a BBC broadcast (or read the same newspaper, if we wish to extend the notion to written language), whereas there also exist local varieties of English which are not all mutually intelligible. To "interact by means of speech" in all the contexts of life means controlling the varieties of speech which occur in all those contexts, and thus speech communities must be regarded as existing on more than one level: perhaps we might use the terms *wide(r)* (e.g. English) and *narrow(er)* (e.g. Yorkshire English, American Urban Black English, Indian English) to mark this distinction. On the narrower level it is not uncommon to find speech communities which make habitual use (actively or passively) of more

[5] Hymes (1968: 44) makes another important point in this context:

> ....as a major process of linguistic change, genetic diversification is limited to one portion of human history...It will seldom occur again...The great triumphs of comparative linguistics in method, and the great nineteenth century interest in tracing origins, should not b[l]ind us to the fact that the major process of linguistic change is now, and for some time has been, functional reintegration of diverse languages within complex communities.

Clearly, the period under discussion in this paper (at least the latter part of it) already falls within the stage of human history characterized by what Hymes calls the process of "functional reintegration...within complex communities".

[6] "I would tentatively define the basic notion of *speech community* in terms of shared knowledge of rules for the interpretation of speech, including rules for the interpretation of at least one common code" (Hymes 1968: 37). The term *code* is used here, as it is generally used in sociolinguistics and linguistic anthropology, to refer to alternative modes of expression within an individual's or a group's *communicative repertoire* - such as Black/standard English for Blacks in the United States, French/German/Letzeburgisch for Luxemburgers, classical/colloquial Arabic in the Arab countries from Iraq to Morocco (Ferguson 1964), Haitian Creole/Haitian French for Haitians (*Ibid*), classical/colloquial Tamil in South India (Pillai 1960), etc.

than one language or code.[7] Thus, the ability to speak a language is neither a necessary nor a sufficient criterion for membership in a particular cultural, ethnic, or even communicative group. It follows that in looking at ancient speech communities, we need to be alert to this wide-narrow distinction. (See Section 5 below for the application of this notion to the present case.)

Another important point made by Hymes (1968: 39) is that "the time depth relationship between a code...and a community cannot be taken for granted, but must be empirically determined". Thus, for example, we cannot assume that features associated with the Dravidian speakers of South India today were necessarily associated with the speakers of Proto-Dravidian. Furthermore, we must be alert to the possibility that individuals, and even sizable groups of people, changed their membership in both linguistic and cultural groups at various times in the past.

Therefore, while it is appropriate to refer to "speakers of Proto-Dravidian" or "members of the proto-Dravidian speech community", or "speakers of Old Indo-Aryan", or even (when justified) "Dravidian-Old Indo-Aryan bilinguals" (see 2.2 below), the use of labels such as "the Dravidians" or "the Aryans" is not justifiable in linguistic terms. In fact, their use in any context is problematic (see Hymes 1968: 42), since they can only be justified by demonstrating the existence of a group which both spoke the language in question and possessed particular attributes.

1.2 Reconstructed vocabulary and proto-cultures

The cultural content of reconstructed words leads to inferences about many areas of proto-culture, including habitat, ecology, material culture, social structure, religion and technology. However, caution must be exercised and two important principles observed:

(1) The meaning assigned to a reconstructed form can be no more specific than that meaning which is shared by all the cognate forms. For example, OIA*yava-* means "barley", but since the other Indo-European cognates refer either to "grain" in general or to other (specified or unspecified) grains, the only meaning which can be assigned to the Proto-Indo-European form is "grain" or "a grain" (see Mayrhofer 1953 *s.v.*).

(2) The absence of a reconstructible term for a specific artifact, cultigen, natural feature or the like in no way proves the absence of the object in question

[7] Hymes (1968) gives several examples. Such cases abound in South Asia: for example, the Saurashtri community of South India speaks Tamil as its outgroup language and a Tamilised Gujarati as ingroup language (Pandit 1968, 1974); villagers in the Maharashtra-Karnatak border area use Marathi, Kannada and Urdu in different contexts (Gumperz & Wilson 1971). In ancient India, upper caste males used Sanskrit in many contexts and various Prakrits in others; some may have even used non-Aryan languages as well (Southworth forthcoming: Chapter 2.83).

in the culture(s) associated with the proto-speech community. It simply means that no word can be reconstructed for that item. (The item might have existed and been designated by a single word in the proto-speech community, but if that word was replaced by another - or went out of use as a result of culture change - in one or more branches, it cannot be reconstructed.) For example, though we cannot reconstruct words for "city" in early Dravidian, there is indirect evidence that urban institutions were known to Dravidian speakers by the third or early second millennium B.C..[8] Note that this condition does not apply to texts: thus, the absence of any reference to urban institutions in the Ṛgveda can be taken to mean that its authors had no awareness of the cities of the Indus Valley (and thus probably entered this region after the decline of those cities, see 2.4).

1.3 Language contact

Linguistic evidence for contact between two speech communities can involve lexical diffusion (borrowing of individual words) or structural diffusion (phonological or grammatical influence of one language on another, which can be treated linguistically in terms of the borrowing of rules). Evidence of diffusion of any kind leads to the historical inference that some members of one or both speech communities had some degree of bilingualism. The *quantity* and *linguistic types* of lexical items diffused can lead to more specific inferences regarding the type of contact, its range, and its intensity (see Southworth 1990a and 2.2 below). The *directionality* of lexical diffusion can sometimes, but not always, be established by cultural or linguistic arguments, whereas the directionality of structural diffusion is often impossible to establish without contemporary evidence. The semantic areas in which borrowed words occur (e.g. agriculture, metallurgy) lead to inferences about the social or technological domains in which contact took place.

1.4 Internal divisions: dialectology of ancient speech communities

Linguistic changes which affect part of a speech community are believed to reflect communicative boundaries, in the sense that those individuals who participate in the change are presumed to be in closer communication with each other at the time of the change than they are with those who do not undergo the change, usually for reasons of socio-political affiliation. In favorable cases it is possible to reconstruct some of this history. In 2.3 I discuss the question of the "inner" and "outer" groups of Indo-Aryan, a case in which linguistic evidence

[8] The oldest Indo-Aryan words for city, *nagara-* and *paṭṭaṇa-*, are probably originally Dravidian (see Mayrhofer *s.vv.*), though they cannot be reconstructed to an earlier date in Dravidian than the last half of the first millenium B.C..

provides strong evidence for an early division in the Indo-Aryan speech community.

1.5 Reconstructing geographical location

Where there is no textual or inscriptional evidence for the earlier location of a speech community, several types of linguistic evidence may be useful. Toponymy, the study of place names, can provide evidence for the linguistic identity of earlier inhabitants in a region (see the discussion of Dravidian place-names in western India in 3.4). The lexicon, whether reconstructed or attested, may provide clues to habitat, or possible links to particular archaeological assemblages (for example, the agricultural inventory of Proto-Dravidian is similar to that found in villages in the Deccan, see 3.4). Finally, evidence of linguistic borrowing (1.3 above) can show the probability of earlier contact among speech communities (see 2.2, 3.2, 4, 5 below for further discussion).

1.6 Chronology

Obviously the best kind of chronological indicator is an inscription or text which is dateable by external criteria. For example, an inscriptional treaty of the Mitanni of the upper Euphrates, dateable to about 1380 B.C., contains fragments of Old Indo-Aryan in a form close to that of the Ṛgvedic hymns, thus providing a date for this stage of Old Indo-Aryan (see Mayrhofer 1974). This sort of thing is rare, however, and linguists generally have to make do with very approximate methods. These include (a) the techniques of glottochronology and lexicostatistics, which provide only very rough approximations at best, and which depend on the assumption of a constant rate of vocabulary replacement, and (b) rough estimates of the duration of major linguistic changes, which have never been tested against data on changes of known duration. Correlations between cultural vocabulary and archaeological assemblages may also provide evidence (see 3.4).

2. Indo-Aryan linguistic prehistory

2.1 Vedic culture

Other papers in this volume deal with this matter in greater detail. The following points are relevant to the present discussion:

(1) The Ṛgveda depicts a pre-urban society with copper and possibly iron technology, evolving from nomadic pastoralism dependent on cattle to a form of settled agriculture. (In the earliest period, the only specific crops mentioned are barley and beans, while later texts such as the Atharvaveda mention other cultigens including wheat and rice.) They were a warlike people who used a light-

weight, horse-drawn, spoke-wheeled chariot, an innovation which no doubt provided an advantage in battle over people using oxcarts.

(2) Tribal or lineage identity was important, and the patriarchal family was the basic social unit (Thapar 1978: 214).

(3) There are clear indications of "cultural exclusiveness and separation from the local people" (*Ibid*), and expressions of contempt for the physical appearance, language, and religious beliefs of the indigenous people (Deshpande 1979: 2-3).

2.2 Early language contact

Studies of non-Indo-European elements in the Old Indo-Aryan language lead to the inference that there was contact from the earliest period between OIA speakers and speakers of other languages. Elements of Dravidian origin are found in the language of the Ṛgveda, and a handful of words even appear to have entered the language during the stage preceding the separation of Indo-Aryan from Iranian, which could be placed roughly in the early second millennium B.C.. The numbers of probable loans for the different periods are as follows:

(1) Proto-Indo-Iranian period:	5
(2) Early Vedic period:	27
(3) Later Vedic period:	8
(4) Epic and Classical Sanskrit:	48
TOTAL	88[9]

While these numbers are not very large, it must be remembered that the early texts represent the ritual language, which would not only have been linguistically conservative, but would have consciously avoided terms which were known or believed to be of non-Aryan origin. Thus it is likely that the spoken language of Vedic times contained a considerably larger number of Dravidian elements.[10]

There is also evidence for the structural influence of Dravidian on Old Indo-Aryan, though it is controversial for the earliest period. A number of features of Indo-Aryan appear to have come from Dravidian, as indicated in Figure 1. These are particularly marked in the eastern and southwestern Indo-Aryan languages, which are presumably descended from those varieties of Old Indo-Aryan most affected by contact with Dravidian speakers. While individual loanwords

[9] While Indo-Aryanists do not accept all of these words as Dravidian loans (see especially Hock 1975), I have included here only those words which show a clearly higher probability of Dravidian origin because of phonological, grammatical, and/or semantic criteria.

[10] The separateness of ritual language among pre-literate peoples, and the frequent incomprehensibility of particular codes (such as hunters' language, courting speech) to uninitiated members of the speech community, has frequently been commented on by linguists and ethnographers. (See Hymes 1968: 38; Newman 1964 for examples and further references.)

may pass from one speech community to another as a result of casual trade contact, this type of structural influence of one language on another is usually associated with extensive cultural symbiosis accompanied by large-scale bilingualism. (See Southworth forthcoming, chapter 3.31, for details.)

Figure 1: Dravidian features in Indo-Aryan languages

	Vedic (1000B.C.)	Pali (500 B.C.)	Prakrit (300 B.C.)	"Outer IA" (?1000 B.C.)	Dravidian (?3000 B.C.)
1. Retroflex-Dental Contrast	(increasing in frequency over time) - - > - - > - - > --> --> ->->->->->>>				Regular Proto-Dr Feature
2. Assimilation of stops	sporadic	regular	regular	regular	Regular Proto-Dr Feature
3. Weakening of stops	ABSENT	sporadic	regular	regular	Late Proto-Dravidian (sporadic)
4. h -> Ø/C__ (Deaspiration)	sporadic	regular	regular	regular	No aspiration in pre-contact Dr.
5. Initial stress	ABSENT	ABSENT	ABSENT	co-existing with other patterns	Regular Proto-Dr Feature

2.3 Internal divisions of OIA

Dialectology of modern Indo-Aryan provides evidence for an early division between what Grierson called the Inner and Outer groups,[11] the former including primarily what is now the Panjabi, western Hindi, and Rajasthani areas of north India, the latter including most of the remainder - i.e. eastern Indo-Aryan (Bihar, Bengal, Assam, and Orissa), southwestern India (Maharashtra and parts of Gujarat), and perhaps Sindh and Kashmir (see Southworth forthcoming, chapters 5 and 6). The evidence consists of shared linguistic innovations linking the eastern languages (Bangla, Assamese, Oriya, etc.) with those of the southwest (Marathi, Konkani, Gujarati), primarily past forms in *-l-* (such as Marathi *ge-l-ā*, Ban-

[11] Masica, in a comprehensive discussion of proposed subgrouping schemes for Indo-Aryan, concludes that the extensive overlapping of innovations makes it impossible to come to any definite conclusions (1991: 446-63). In my opinion, Masica has not given sufficient importance to the time dimension: I believe that the available evidence shows that the Inner-Outer division is older than the divisions implied by other linguistic isoglosses in Indo-Aryan. (See Southworth forthcoming: Chapters 5 and 6, for the full argument.)

gla *gæ-l-o* "he went"). The shared details make it probable that these changes were not independent, but reflect an ancient shared regional identity.

This linguistic division correlates fairly closely with two other divisions: (1) that between PGW (or Painted Gray Ware) and BRW (Black and Red Ware), and (2) the locations of two major lineages as described in the Puranas (OIA *purāṇa-*), namely the Pauravas or descendants of Pūru, who by tradition inherited the *madhyadeśa* ("middle country"), and the Yādavas[12] or descendants of Yadu, who according to the tradition was banished by his father Yayāti to the south/west (Thapar 1978: 243).

The relationship between the distribution of the two pottery types and that of the lineages has been discussed in an important article by Romila Thapar (1978: 240-67). The Yādavas, incidentally, were known to observe cross-cousin marriage, a practice counter to Aryan customs and generally associated with Dravidian speakers. For this and other (linguistic) reasons, it is probable that the Yādavas or "Outer Group" speakers of Indo-Aryan had greater and more direct contact with the earlier peoples of the subcontinent than the Pauravas or "Inner Group" speakers did.

2.4 Location and chronology

The geographical focus of Ṛgvedic society was the *sapta-sindhava* (the region of the 7 northern tributaries of the Indus) "roughly from the Kabul River to the Sarasvati River" [now the dry bed of the Ghaggar] (Thapar 1978: 214). Since the Ṛgveda shows no evidence of substantial contact with the Harappan civilisation of the Indus Valley, it would follow that the Vedic people entered the Indus Valley only after the decline of that civilisation in the mid-2nd millennium B.C.. The references to battles and destruction of fortresses, once thought to represent the destruction of the Harappan cities by Aryan hordes (Wheeler 1966) - if they have any basis in fact - are more likely to refer to small-scale attacks on walled villages of post-Harappan peoples (see Thapar 1978: 215, 1984: 43-4).

3. Dravidian linguistic prehistory

The subgroups of Dravidian and their approximate chronology (see 3.4 for a more detailed discussion) are presented in Figure 2, on the opposite page:

[12] This word, which has no known Indo-European etymology, may well be Dravidian, meaning "herder" (from a PDr **yāṭu-van* "goat/sheep-herd" (see DED5152 **yāṭu* "sheep/goat"). This would imply that the term *yādava-* is original, and the mythical Yadu derived from it by back-formation. (See Southworth forthcoming: Chapter 3.21 and Appendix 3A, item A21, for further details.)

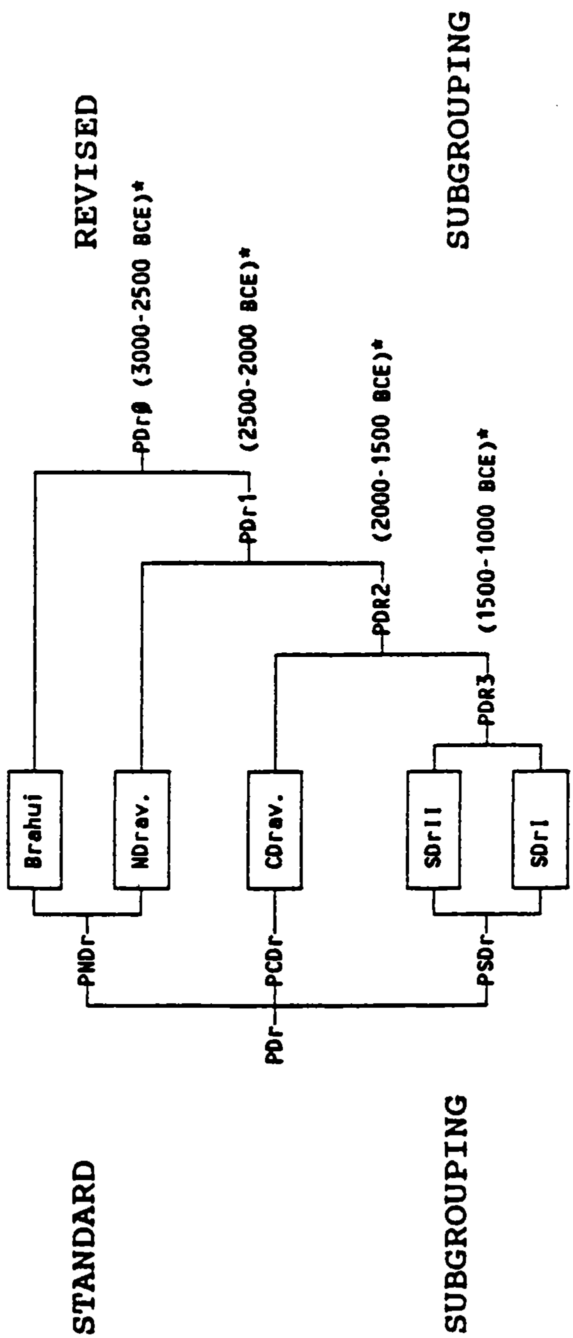


Figure 2: Subgroupings of Dravidian Languages
(See section 3.4 for discussion of chronology)

3.1 Overview of reconstructed vocabulary (See Southworth forthcoming, especially Chapter 8, for details)

The lexicon which is reconstructible for PDr-Ø, the earliest period of Dravidian, suggests a herding society with some knowledge of agriculture. At this stage, speakers of Dravidian kept sheep, goats and possibly buffalo, and probably constructed thatched dwellings and were therefore at least partly sedentary. They presumably used some grain, but we cannot say whether they cultivated it themselves or exploited wild species. They had a word for the horse, which carries a strong suggestion that the people who spoke this language lived in a region other than peninsular India.[13] It may be worth noting that the Brahui are now located in Baluchistan.

In PDr-1 we find additional words for fauna including the cow, bear, deer, monkey, wildcat, squirrel, imperial pigeon, louse, bloodsucker lizard, crocodile, serpent, peacock (feather/tail). Aquatic animals are represented by terms for fish (general term), carp, and eel. Terms for flora include a number of species which are specific to the South Asian subcontinent. Clues to agricultural practices are found in terms for plough and ploughing (probably from some other source),[14] three verbs meaning "winnow", verbs for "reap", "sow seed", "husk (grain)" and "milk", as well as terms for "field under cultivation", "wet land" and "uncultivated land". Words for food crops include at least two which appear to refer specifically to rice or paddy.

Evidence for other economic activities includes words for paying debts (taxes or fines?), selling, and repayment or contribution. Informative items of material culture include words for footwear and cloth garments; the latter, in conjunction with the verb "weave", suggests the occurrence of woven cloth. Terms for features of house construction include upper story or loft, tile roof, beam/rafter, ridgepole, doorway, post, and plastering. Words for pathway and hut (or village?) also occur. Tools and utensils include the plough, axe, fan, carrying pole, basket, and hook. Recreation includes singing and playing games, and there is a word for wind instrument.

Under social structure, apart from kin terms there are words for "king" or "chief", "servant", "obeisance", "to beg" and "mendicant", "ownership" (or

[13] Burrow (1972) notes the existence of a word for the horse which is found only in Tamil and Brahui (DED 500: Tamil *ivuḷi*, Brahui *(h)ullī*, and which therefore must have existed in the earliest Dravidian; he concludes that this stage of Dravidian (McAlpin's PDr-ø) could not have been spoken in South India, since the horse is not native to that region. McAlpin suggests that this early Dravidian word probably referred to the Asian wild ass, *Equus hemionis*, which is native to South Asia, rather than the domesticated horse, *Equus caballus*, which was not introduced into South Asia until after 2000 B.C. (McAlpin 1981: 147-8).

[14] PDr * *ñān-kal*, OIA *lāngala-* "plough" seem to be both borrowed from some third source, possibly Austroasiatic. See Southworth 1979: 200, 205.

"wealth"), "custom", and "marriage (procession)". Religion makes its appearance here with words for "devil" and "burial rites".

Thus we can say that at this stage we are dealing with a society which included settled agriculturists who grew and processed rice and possibly other grains, kept livestock, and probably caught and ate fish. They appear to have had some sort of complex rights to land, along with a fairly high degree of social stratification. They had a well-developed and varied technology, probably including the use of some metal(s). They built multi-storied houses with tile roofs and plaster. Their economic system included the notions of selling and payment of debts and other obligations (contributions to rituals, possibly also fines and/ or taxes).

In PDr-2, although the new material is more than half again as much as that available for PDr-1, the number of new cultural *categories* introduced is relatively small. Several new animal species appear at this time, including the domesticated horse. New plant species are many; new crop plants include sesamum, several millets, at least four species of gram, sugar cane, gourds, and various peas. New terms in the economic sphere include words for "granary", "bazaar", "laborer's wages", and an uncertain term which may have meant "share of produce to be paid". Material culture has little new to offer except in the area of clothing and adornment. The technology of agriculture shows little change, apart from the addition of a few new implements such as the sickle, ploughshare, fishhook and cattle bell. Iron makes a definitive appearance here. In social structure, apart from kin terms there is one word which suggests the development of the caste system. Another word for "king" appears here, as well as one for "thief". Religion is represented by terms for "demon" or "possession by demons", "priest" or "devotee", and "god" or "spirit".

Thus, in spite of the presence of numerous new terms at this stage, there is little reason to conclude that PDr-2 represents a very different society from that represented by PDr-1; the level of technology and the socio-economic structure do not show any striking changes. We are still dealing with a primarily agricultural and herding economy.[15]

Coming now to PDr-3, it is evident that we have entered a new era, with clear signs of urban institutions, urban edifices, armies and weapons, complex economic relations, advanced technology including irrigation techniques and metallurgy, and the caste system in a highly developed form. We can have no hesitation in saying that at this level we are dealing with a state society. To cite a few diagnostic items: payments to government in the form of tax, duty, or

[15] Though the word for "market" is new, it was perhaps foreshadowed in the previous stage in words for economic dealings; the explicit appearance of caste names is also new, but was perhaps anticipated in the preceding stage by the evidence of social stratification, ethnic terms, and probable occupational specialisation.

tribute; currency, corvée labor, a term for a manager or administrator, and a custom-house or toll-gate; words for "city" and features of cities; armies and weapons; irrigation, including man-made tanks for water storage; metalworking; specific caste terms, including one for "outcaste" or "pariah"; sea and land vehicles for transport or warfare; and two more words for "king" or "chief", one of them apparently borrowed from Sanskrit.

3.2 Language contact

Language contact between Dravidian and Indo-Aryan has been discussed in 2.2 above. The following data are also relevant for the determination of earlier locations of Dravidian-speaking people:

(1) McAlpin's claim that the Dravidian word for the domesticated horse, PDr-3 *kutirai* (DED1711), is a loan from Elamite (McAlpin 1981: 147-8);

(2) The appearance of Dravidian-derived words for "rice" in Somali (East Africa), Malagasy (Madagascar), Ngaju-Dayak (New Guinea), Persian, and ancient Greek (see Southworth 1979: 202, 222);

(3) Bedigian's discovery of the resemblance between the SDr-I word *eḷ(ḷu)* and the Akkadian term *ellu*, both meaning "sesame";[16]

(4) the PDr-1 word for "date", **kīntu/cīntu*, which shows a close similarity to the proto-Bantu **mukindu* "wild date palm" (Nurse 1983: 142).[17]

The implications of these points are discussed in 3.3. and 5 below.

3.3 Earlier locations of Dravidian-speaking people

The possible connections of Dravidian languages with Elamite (see McAlpin 1981, and item 3.2.(1) above) and with Uralic (Tyler 1968), though not fully accepted by scholars, would suggest an origin outside the subcontinent. The evidence of contact with early Indo-Aryan and its predecessor, proto-Indo-Iranian,

[16] Sesame seeds were found at Harappa, one of the major sites of the Indus Valley civilization (Vats 1940). Sesame was important both as a food and an ingredient of religious ceremonies in ancient India, and is still so today. Assuming a connection between Dravidian *eḷḷu* and Akkadian *ellu*, it is impossible to determine without further evidence which was the source, or whether there was perhaps some third source. Nonetheless, since sesame was grown in the ancient Indus Valley and was involved in the trade with Mesopotamia (see Ratnagar 1981: 52 (note 30), 80), the resemblance between the words for sesame provides support for assuming some sort of relationship between speakers of Dravidian languages and the Indus Valley civilization. (See also Southworth 1990b: 227.)

[17] Dates were known in the Indus Valley (Vats 1940: 467; Marshall 1931: 27, 587), and the region of Sindh is well-known for this fruit. Once again, this evidence suggests a link between early Dravidians and the Indus Valley. (See further discussion in Ratnagar 1980: 80.)

I have suggested elsewhere that the very name for the region of Sindh, and the original name of the Indus River (OIA *sindhu-*, which lacks any other plausible etymology), may be connected with this Dravidian word for "date" (Southworth forthcoming[b]).

would argue for speakers of Dravidian languages in the upper Indus Valley and Afghanistan as far back as the early second millennium B.C.. The data presented in section 3.2 above point to a probable location of significant numbers of Dravidian speakers on the west coast of the subcontinent (possibly the north-west coast, including the coastal regions of Saurashtra and Sind), and their involvement in sea trade from an early period.

Several lines of evidence point to the earlier presence of Dravidian speakers in western India (Maharashtra and Gujarat). The agricultural repertoire of PDr-2 includes sorghum, several types of grams or pulses, including horsegram, and myrobalans - providing a reasonably good fit with the list of products identified in sites in the Deccan and Gujarat in the early second millennium B.C. (Southworth 1988).

Additional evidence is provided by place names, particularly the suffix *-v(a)lī* [18] (as in Ḍombivli, Borivli - both in the vicinity of Bombay) which occurs very frequently in all the south Indian states (where it still carries the meaning "village" or "hamlet"), and is of undisputed Dravidian origin.[19] In Maharashtra, this suffix occurs primarily in the coastal region known as Konkan, in contrast to the suffix *-gāv*, which is clearly of Indo-Aryan and Indo-European origin, and occurs mainly in the central and eastern parts of the state. This strongly suggests that Dravidian speakers preceded speakers of Indo-Aryan in the coastal area, and possibly also in the central area.[20] The suffix *-vali* is also found in several districts of Gujarat, according to Sankalia 1949. It is frequent in west Panjab, i.e. the region of the northern tributaries of the Indus; it also occurs, though less frequently, in Sindh.[21]

Parpola (n.d.) discusses Dravidian place-names in relation to the Harappan civilisation; in addition to names in *-vali* (and others cited in Sankalia 1949), he notes the place-name suffix *-koṭ*, which figures prominently in the names of cities and towns in the Indus Valley and elsewhere. This suffix, which is also an independent word meaning "fort" at the PDr-3 level, is generally accepted as of Dravidian origin, and is reconstructible to the PDr-2 level in the meaning "wall"

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[18] From PDr-2 *paḷḷī* 'hamlet, settlement, village", from PDr-1 *paḷḷī* "household, people residing together", probably derived from (PDr-2) *paṭu* 'lie down".)

[19] This term occurs late in OIA, and its earliest meaning there is "hamlet of indigenous tribes".

[20] According to historical accounts, this central area of the state was the first part to be settled by Indo-Aryan speakers from the north; the name *mahārāṣṭra*, which was first applied to this area and later extended to the wider Marathi-speaking region, is thought to be a Sanskritization of an earlier *marahaṭṭa* or *maraghaṭṭa*, which possibly contained another Dravidian suffix *haṭṭa*, also meaning "hamlet" or "village" (a Kannada form of *paṭṭi*, cf. DED 3868).

[21] Data on west Panjab and Sindh come from the *Gazetteer of Pakistan* (Garren and Page 1983). In Panjab, the suffix *-wālī* (less frequently *walī*) is found in many areas. In Sindh the suffix takes the form *wārī/wari*, with *-r-* for OIA *-l-* as is often the case in Sindhi (cf. Sindhi *siāru* "jackal": Hindi-Urdu *siyāl* OIA *śṛgāla-*; also *-vāro* (agent suffix, cf. Hindi-Urdu *-vālā* from OIA *pālaka-* "keeper"). See Southworth forthcoming, chapter 9, for further details.

(see DED2207). As an Indo-Aryan word, it occurs late, and according to CDIAL is attested only in the languages of the Outer Group (see 2.3 above). Like *-vali*, it is found as a place-name suffix in the four Dravidian-speaking states of South India (George 1986: 147-9).

Further evidence of Dravidian languages in western India comes from the study of grammatical convergence between Dravidian and Indo-Aryan. Two linguistic traits show continuity between the Dravidian south and the Indo-Aryan languages of the southwest, namely Marathi, Gujarati, and Sindhi. The first is the frequency of retroflex consonants, which is higher in these languages than in the rest of Indo-Aryan, and in fact is close to their frequencies in the major Dravidian languages (see Southworth 1974: 212). The second is the occurrence of a pronominal distinction between first-person inclusive plural ("you and I and possibly others") and first-person exclusive plural ("I and others, not you"). This distinction is original in Dravidian, but not in Indo-Aryan. In the three southwestern Indo-Aryan languages this distinction has been imported from Dravidian, though it is expressed with inherited Indo-Aryan forms (e.g. Marathi *āmhi* "we-exclusive" < OIA *asmākam* "we", *āpaṇ* "we-inclusive"; "you-formal" < OIA *ātman-* "self"). The distribution of this feature is thus quite close to that shown for the highest frequency of retroflex consonants. The distribution of these two linguistic traits can also be compared with the distribution of "Dravidian kinship" as presented by Trautman (1981: 111, Figure 3.7): here the line differentiating the "frontier zone", in which Dravidian and Indo-Aryan systems overlap, also includes part of Maharashtra and Gujarat, though not Sindh.

It seems reasonable to conclude from these data that speakers of a Dravidian language or Dravidian languages were settled in much of the present-day Marathi- and Gujarati-speaking areas before they were occupied by speakers of Indo-Aryan. This Dravidian-speaking population must have been settled before the Indo-Aryan change of *-p-* to *-v-* which transformed *paḷḷī* into *valī*, which can be roughly dated to sometime in the 2nd century B.C., and in fact may have been there much earlier than that (note the evidence of crop plants cited above). For Maharashtra, the influence of Dravidian on the verbal system of Marathi was still being felt after the first Marathi texts in the early 11th century AD (see Southworth 1976). What we have here, then, clearly, is evidence of a zone of bilingual/bicultural interaction between speakers of Dravidian and Indo-Aryan languages which extended from the present-day Dravidian-speaking south to Sindh, that is to the gates of the ancient cities of the Indus.

3.4 Chronology

The approximate dates given for the stages of proto-Dravidian in Figure 2 represent a compromise between the dates resulting from Gardner's (1980) glottochronological study of Dravidian, and a more conservative approach. (For details

see Southworth forthcoming, chapter 8.) This scheme receives some confirmation from the following facts:

(1) as noted in 3.1 above, PDr-Ø (3000-2500 B.C.) shows no knowledge of urban institutions, but traces of such institutions begin to appear in PDr-1 (2500-2000 B.C.), which would be contemporary with the period in which the Indus Valley cities developed;

(2) the majority of the early OIA borrowings from Dravidian belong to the PDr-2 period (2000-1500 B.C.), which coincides with that period assumed for the transition from Proto-Indo-Iranian and the composition of the earliest books of the Ṛgveda.

4. Other languages

In addition to Indo-Aryan and Dravidian, any discussion of the early linguistic situation in South Asia must take into account other languages, however fragmentary the evidence may be for them. I have suggested elsewhere that certain words which are shared by early Dravidian and OIA may possibly be derived from a third source, which is as yet unidentified. It is possible that this source was a Munda language or languages, or a related Austroasiatic language (Southworth 1979: 199-200, 205-6; Southworth 1990: 225-6). Various scholars have pointed to Munda or Austroasiatic as the probable source of certain names of peoples in OIA (see e.g. Lévi 1923). In the Proto-Munda reconstructions of Zide and Zide (1973, 1976) the agricultural vocabulary also fits the Deccan sites mentioned in 3.3 above (though the date suggested by Zide and Zide is 1500 B.C., somewhat later than what I have proposed for PDr-2). Though little more can be said about this possibility as yet, it must be kept in mind in assessing the early sociolinguistic situation in the subcontinent.

5. Conclusions

(1) Several independent lines of evidence point to the earlier presence of Dravidian-speaking people in areas where Dravidian languages are not spoken today, and have not been spoken in recent times:

(a) in the Indus Valley, both during and after the period of the Harappan Civilisation;

(b) on the west coast of India, including the coast of Maharashtra, from the time of classical Greece and Rome or earlier;

(c) in the northern Deccan (modern Maharashtra) in the early 2nd millennium B.C..

In light of the remarks in Section 1.1 above, the presence of Dravidian languages over this wide area probably represents a great diversity of linguistic and cultural groupings, as well as a great variety of interrelations with groups speaking other languages. For example, I have suggested elsewhere that the social mechanism which led to grammatical convergence between Dravidian and Indo-Aryan in Maharashtra probably involved a three-tiered arrangement in which indigenous Dravidian speakers were dominated by Indo-Aryan speakers who controlled the land (Southworth 1971, 1974). On the other hand, the presence of large numbers of village names in *-vali* in coastal Maharashtra probably points to a period when Dravidian speakers were dominant in the area.

Thus, while the linguistic evidence points to the presence of Dravidian speakers in the Indus Valley during the period of the Harappan civilisation, it provides no clue as to their roles therein. If the toponymic evidence discussed in 3.3 above can be supported by further evidence, a case could be made for the dominance of Dravidian speakers in the area, though more work would be needed to clarify the chronological implications.

(2) The inner and outer groups of Indo-Aryan (see 2.3) represent a socio-linguistic and cultural division among Indo-Aryan speakers which probably goes back to the Ṛgvedic period (early second millenium B.C.). The original outer group speakers probably entered the subcontinent earlier than those of the inner group, and bore the main impact of the assimilation with Dravidian speakers and others who preceded them, which impact was passed on to the inner group in an attenuated form.

(3) Contact between Dravidian and Indo-Aryan speakers began as early as the Ṛgvedic period or before, and presumably involved extensive bilingualism and biculturalism over large areas and over many centuries. As to the reason for the elimination of Dravidian languages in north India (except for remnants like Brahui and the NDr languages Kurux and Malto),[22] it is most probable that the majority of Dravidian speakers were absorbed into the Indo-Aryan fold. This statement is based not only on the greater *a priori* probability of absorption as compared to genocide and forcible migration, as well as the lack of evidence for these phenomena (*contra* Wheeler 1966), but also on linguistic data such as the evidence that the process continued into historic times (see 3.3 and Southworth 1976).

It might be more appropriate to say that in northern India, during the late second and early first millennia B.C., speakers of Indo-Aryan and Dravidian languages (along with as yet unidentified other groups) merged into a single cultural complex whose dominant language was a form of Old Indo-Aryan with considerable local variation.

[22] Hock (1975: 87-8), among others, has noted the possibility that the current locations of Brahui, Kurux, and Malto may be recent.

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K.R. Norman

12. Dialect variation in Old and Middle Indo-Aryan

If we accept Burrow's suggestion (Burrow 1973) about the movements of the Proto-Indoaryans, then we may assume that, moving down from Central Asia, the Indo-Iranians had reached an area to the north of present-day Iran not later than 2000 B.C.. They then split into two. One section, the Iranians, remained in the region of the River Oxus. The other section, the Indo-Aryans,[1] began to move south. Some of them moved down into Iran and then to the west, and, as is well known, there are traces of their language in the documents of the Mitanni kingdom in North Mesopotamia c. 1500-1300 B.C.. A treaty concluded between the Mitanni and the Hittites c. 1350 B.C. invokes by name certain divinities including Indara, Mitraśil, Naśatianna and Uruvanaššil, who are clearly identifiable as Indra, Mitra, Nāsatya and Varuṇa (Thieme 1960). A treatise on the training of horses, discovered in the archives of the capital of the Hittites, includes such technical terms as *aika-vartana*, which is easily identifiable as being connected with Skt *eka-vartana* ("one turn").

Other Indo-Aryans moved eastwards and began to enter India. It is probable that the Iranians began to move south c. 1400 B.C. (Burrow 1973: 140), and overcame any Indo-Aryans who were still living in the south of Iran, thus cutting off the two branches of the Indo-Aryans from each other. The western branch was presumably absorbed into the Mitanni and other Anatolian peoples, and eventually ceased to exist as a separate race. We hear no more of them.

The eastern branch probably remained for a while on the boundary of Afghanistan and India, and moved into India in a series of waves, possibly spread over several generations. When they moved into India, they met the indigenous inhabitants of North India, and in particular the inhabitants of the Indus Valley. It is clear that they met Dravidians at an early stage of their move into India. Signs of the Dravidian substrate are already evident in the oldest IA material we possess, and we find in the Ṛgveda such words as *kūṭa* "hammer", *daṇḍa* "stick",

[1] Abbreviations: BHS = Buddhist Hybrid Sanskrit; IA = Indo-Aryan; IE = Indo-European; MIA = Middle Indo-Aryan; NIA = New Indo-Aryan; OIA = Old Indo-Aryan; Pkt = Prakrit; Skt = Sanskrit.

and *phala* "fruit", for which a Dravidian origin is plausibly claimed.[2] Kuiper (1991: 95-96) has recently shown that at least 5% of the Ṛgvedic lexemes are of foreign origin, while a list can be made from the Ṛgveda of at least 35 non-Aryan names of persons, families and peoples who took part in Vedic social life. It is debatable whether the Dravidians in North India were the inhabitants of the great cities of the Indus Valley,[3] or whether the inhabitants of that area spoke an unknown language or languages, which had completely died out by historic times.

Since we can assume that the IA dialects were continuing to develop all the time, it is very likely that each wave of Indo-Aryans who moved into India spoke a slightly different dialect. It is also likely that, if we are talking about a time span of several generations (Burrow 1973: 126), their cultural and religious backgrounds would also have varied, to some extent. It seems very possible that there would have been conflict of some sort between the invaders and the indigenous inhabitants, but it is also likely that after that initial conflict the two races would have begun a process of assimilation, and that there would have been interaction between the language of the inhabitants and the IA language(s).

It is also probable that when the later waves of Indo-Aryans moved into India, they would have been confronted by these groups of mixed language and culture users, who represented a mixture of the preceding invaders and the indigenous populace, and there would have been further conflict. The result of this is that besides the dialects which we might expect the various groups of Indo-Aryans to speak, there were also the variations which arose from the fact that they had different amounts of Dravidian and other substrates mixed in with them.

It seems probable that the various groups of invading Indo-Aryans had their own (oral) literature, in their own distinctive dialects. We find some trace of this in historic times - the Ṛgveda is in a slightly different dialect from the other Vedas and from the form of Sanskrit which developed into classical Sanskrit. It is clear, however, from the alternative forms we find in the Ṛgveda, e.g. the instrumental plural of *a*-stems in both *-ebhis* and *-ais*, that its language is itself a mixture of dialects. There are also traces of alternative phonetic developments; consider, for example, *śakman* and *śagma* < *śak-* + the suffix *-ma(n)*, or *mugdha* < *muh-* + the past participle suffix *-ta*, where the later language has *mūḍha*. Such variations indicate that the apparently fixed patterns of *sandhi* that we find in classical Sanskrit were at one time not so fixed.

There are also some signs of what we might call "Prakritisms" in the Ṛg-

[2] For a discussion of the words in the Ṛgveda which are possibly of Dravidian origin, see Southworth 1979: 194-195. For words in Indo-Aryan languages for which a Dravidian origin seems likely, see Burrow and Emeneau 1984: 759-768.

[3] See Knorozov, Albedil and Volchok 1981; Parpola 1975: 178-209.

veda, i.e. early indications of the divergences from the OIA dialects which were to develop into Middle Indo-Aryan. So we find that the expected genitive singular ending **-ṛs* of *-tar* stems is replaced by *-tus*, as the vocalic *-ṛ-* sound is replaced by *-u-*, e.g. *pitus* from *pitar-*, instead of **pitṛs*. There are also examples of the typical MIA phenomenon of the retroflexion of a dental *-t-* by a vocalic *-ṛ-*, which then disappears, e.g. *vikaṭa* "horrible", besides *vikṛta* "changed, mutilated". It is interesting to note that in the traces of Proto-Indoaryan found in the Hittite archives the word for "seven" is *šatta* (Burrow 1973: 125), showing that the MIA feature of assimilation of *-pt-* > *-tt-* had already begun to operate in that language also. The word *assussanni* < *aśvasani* "horseman" (Mallory 1989: 38) seems to show both the labialisation of *a* > *u* after *v*, and the subsequent assimilation of *śv* > *ss*. This suggests that the development of such features had already begun before the Indo-Aryans entered India.

We know from the evidence of Iranian and from the differences between the Ṛgvedic language and later Sanskrit that there must have been OIA dialects which turned all *-r-* and *-l-* sounds into *-l-*, others which turned them all into *-r-*, and still others which mingled the two sounds in different proportions. It is very likely that there was one dialect which turned all *-r-* and *-l-* sounds into *-l-*, and had the nominative singular of *a*-stems in *-e*, and also turned all three sibilants into *ś*. The speakers of this dialect moved to the east of India, and there is evidence that by historical times the dialect was being used in Magadha. Its speakers seemed to have remained close together, for the epigraphical evidence suggests that its use was restricted to a very small area (Norman 1980: 68). That other dialects had the nominative singular in *-e* is shown by the *-e/-o* alternation in the post-Aśokan Kharoṣṭhī inscriptions (Brough 1962: 115) from NW India.[4]

As the Indo-Aryan speakers moved towards the east of India they came into contact with tribes speaking languages which belonged to another linguistic family, the Munda group. They also borrowed words from this source (Kuiper 1948), although not on the same scale on which borrowings from Dravidian had taken place. They also borrowed widely, especially in the field of agriculture, from an unknown source. Masica (1979: 137) states that about one third of such items in Hindi seem not to be of IA, Dravidian, Munda or known foreign origin. Some of these borrowings are also found in the Dravidian languages, from which we can deduce that both the Indo-Aryans and the Dravidian peoples were at one time in contact with speakers of a language from another linguistic group. If the inhabitants of the cities of the Indus Valley civilisation were not Dravidians, then it is possible that they were the people who spoke this unknown language. Clearly those people were still in existence in India at some time after the

[4] There is a single example of the change of final *-as* to *-e*, not *-o*, in the Ṛgveda in *sū́re duhitā́* (ṚV 1.34.5, but *sū́ro* at 7.69.4). This is perhaps a dialect form, taken over from some other source, although it is explained by some as showing dissimilation of vowels.

arrival of the Indo-Aryan speakers in the North-West of India, having already been in contact with the Dravidians before the Indo-Aryans arrived.

It seems likely that by about 500 B.C., or about a century after this if we accept the later dates (Norman 1991: 300-312) for the beginnings of Buddhism and Jainism, the vernacular dialects, which are sometimes called Prakrits,[5] were appreciably different from the Sanskrit of the brahmanical class. Not only were there morphological and phonological differences of the sort which I have mentioned, but there were also differences of vocabulary (not simply due to the adoption of words for animals or plants which were unlikely to be a part of the brahmans' language), and variations in the way in which words were formed, as well as ways in which they were combined. External *sandhi* in Pāli, for example, differs fundamentally from that in Sanskrit. It is always arbitrary and applies only to words which are syntactically closely connected. It permits hiatus, elides and combines vowels including nasalised vowels, and in particular depends upon the crasis or elision of *-i* and *-u* before vowels rather than the development to *-y* and *-v* found in Sanskrit. Some words which are compounded in Sanskrit appear uncompounded, with a *sandhi*-consonant between them, e.g. *ati-r-iva* = Skt *atīva*. Windisch pointed out that such a *sandhi* system appears to be older and more natural than the system found in Sanskrit.[6]

If we believe that the speakers of IA languages came into India in waves, then we should expect there to be traces of the differences which such a wave-entry would have produced in their languages. We can identify Vedic Sanskrit as being the version of the language spoken by the priestly caste. Classical Sanskrit shows the later form of another of the older dialects, as it was defined and fixed by the grammarians. If MIA represents the language(s) of the lower classes, whose speech habits were free from the restraints of religious considerations and grammarians' rules, then we should expect to find traces of the dialectal variety upon which they were based.

Almost thirty years ago Emeneau (1966: 123-38) considered the evidence available for the existence of OIA dialects and discussed some of the features in MIA and NIA which give evidence for their existence. In this paper I should like to take up where Emeneau left off, to make a further investigation into some of the dialect features of MIA, to consider material which Emeneau, for the most part, did not include in his study, and to try to assess whether it throws light on the dialect situation in OIA times.

We can divide the structure of MIA into three component parts: (1) those forms which can be derived from forms which are attested in OIA; (2) those forms which can clearly be seen to be of IA origin, but cannot be related to any

[5] From Skt *prākṛta*, derived from *prakṛti* "origin", i.e. "connected with, derived from, an origin", viz. Sanskrit.

[6] Quoted by Geiger 1916: § 68.

OIA forms at present attested; and (3) those forms which are to be regarded as innovations. These fall into two classes: (a) those which arise by levelling and analogy from already existing forms, and (b) those forms which have no affinity with anything else in OIA or MIA, and must therefore be regarded as borrowings from a known or unknown non-IA source. These constitute the so-called *deśī* forms.

(1) In the first category we can include all those features which are directly derivable from Sanskrit. The phonological developments which arise in the course of such derivation, e.g. the development of Skt *-rv-* > MIA *-bb-* or *-vv-*, or of Skt *-ry-* > *-riy-* or *-yy-* or *-jj-*, seem in origin to be of a dialectal nature, based upon pronunciation differences, e.g. of *b/v* and *y/j*, or upon the variation which can arise from the resolution or assimilation of consonant groups. It seems probable that these differences were originally tied to the geographical distribution of their speakers, arising from the movement of different groups of invaders into different parts of India. They provide one of our means of classifying the dialects of MIA, although by the third century B.C., when historical records begin, a blurring of these dialect differences had already begun to occur.[7]

(2) In the second category we can include those features which are clearly of IA, or even IE, origin but have no attested Skt equivalent, e.g. suffixes not, or only rarely, found in Skt, or those words which show a different grade of root from that found in Skt, but can be shown not to be MIA innovations, because the formation could only have evolved in a pre-MIA phonetic form, or because a direct equivalent is found in an IE language other than Skt.

(3) (a) In the first class of the third category we can include the replacement of those forms which, although correct historically, seem to be irregular, e.g. *iṣṭa* as the past participle of *icchati*. As part of the general tendency towards the removal of the dichotomy between root and stem forms in MIA (Edgerton 1954: 78-81), we find a past participle *icchita* evolved in Pāli. (b) In the second class of this category we can include the importation of words from Dravidian, Munda, and other sources, e.g. Pkt *pasaṃḍi* "gold", cf. Telugu *pasiḍi* "gold" (Norman 1966: 74-78).

We can make use of the second category, i.e. those forms which are clearly IA but are not at present attested in OIA, to support a belief in the existence of different dialects of OIA, since we may assume that the forms in that category go back to "lost" OIA dialects. It is not easy, when discussing the forms which I wish to examine in this paper, to be absolutely certain that they do not fall within the third category I mentioned — those forms which have evolved on the analogy of already existing forms. We must, in each case, satisfy

[7] Beside the expected Western (*c*)*ch* < *kṣ* in *chaṇati*, *chamitave*, *chudda* and *vracha*, the Girnār version of the Aśokan Rock Edicts has Eastern (*k*)*kh* in *saṃkhita* (RE XIV (A)) and *ithījhakha* (RE XII(M)). See J. Bloch 1950: § 14.

ourselves that they differ from, rather than resemble, existing forms. We must put forward evidence that they cannot be innovations, but are rather successors to an earlier form of the language.

Much of the material I shall quote here is not new. Bloch (1934: 14-15) and Burrow (1955: 45-47) devoted a few pages to this problem, but I know of no attempt to make a complete and comprehensive collection of the evidence for this interesting category of forms in MIA, and it remains scattered through the pages of Indological writings. I believe that, until such a collection is made, the amount of material available will be underestimated. In this paper I wish to bring forward examples from a collection published elsewhere (Norman 1986: 389-396), which support a belief that MIA preserves forms which give evidence for the existence of dialects of OIA which differed in some respects from those attested in literature. I will examine the material under four main headings: (1) phonology, (2) vocabulary, (3) roots and stems, and (4) suffixes.

1. Phonology

(a) Although Sanskrit shows the same development > *kṣ* of both voiced and unvoiced velars + sibilant, MIA shows a dialectal variation in that it sometimes distinguishes between the two, the unvoiced developing > *(c)ch* or *(k)kh*, e.g. Skt *kakṣa* "arm-pit" > Pkt *kakkha* and *kaccha*, and the voiced combination developing > *(j)jh* or *(g)gh*, e.g. Pkt *jharai* and Pāli *paggharati* [8] = Skt *kṣar-* "to flow" (cf. Avestan *γžar-* and Greek φθείρω), and Pāli *jagghati* = Skt *jakṣati* (from *(g)has-* "to laugh"). Where the development > *(j)jh* occurs in Skt, it is to be regarded as a borrowing from MIA, e.g. Skt *nirjhara* "waterfall" and *jajjhatī* "laughing (as an epithet of water)" (Wackernagel 1896: §§ 141-42).

We can probably assume that other examples of *(j)jh* and *(g)gh* in MIA also go back to a combination of voiced velar + sibilant, although the IE evidence is not so conclusive, since it raises the problem of the IE antecedents of Greek κτ-, φθ-, etc.[9]: Pāli *jhāyati* and *ghāyati* "to be consumed" = Skt *kṣāyati*; Pkt *jhīṇa* as well as *khīṇa* = Skt *kṣīṇa* "destroyed" (cf. Greek φθίνω); Pāli *jhatvā* as well as *chetvā* (which is probably a corruption or a palatalised form of **chatvā*) = Skt **kṣatvā* as the absolutive of *kṣaṇoti* (cf. Greek κτείνω).

(b) An alternative between *k* and *t*, which can be paralleled in other languages,[10] is responsible for certain dialect forms. The alternation occurs in Sanskrit, e.g. the roots *stambh-* and *skambh-* (Wackernagel 1896: §§ 117a), but it is more widespread in MIA, e.g. Pkt *savakkī* "co-wife" < **sapaknī* (cf. Pāli *sa-*

[8] Pischel 1900: § 326 and Geiger 1916: § 56.

[9] For recent literature see Allen 1973: 98-126.

[10] For examples in Iranian see Eilers 1970: 112-27.

pattī < Skt *sapatnī*); Pāli *khāṇu* "tree-trunk" < * *skhāṇu* (cf. Skt *sthāṇu*); Pkt *saṃkhāya* "coagulated" < **saṃskyāta* (cf. Skt *saṃstyāna*); Pkt *okkhiṇṇa* "strewn" < **avaskīrṇa* (cf. Skt *avastīrṇa*); Pkt *vikkhiṇṇa* "scattered" < * *viskīrṇa* (cf. Skt *vistīrṇa*); Pāli *ākhīṇa* "harsh" < **āskīrṇa* (cf. Skt *āstīrṇa* with different meaning); Pkt *paḍikkhaddha* "stopped" < **pratiskabdha* (cf. Skt *pratiṣṭabdha*) (Norman 1979: 321-328). It is probable that the *(c)ch* /*(k)kh* variation < *kṣ* mentioned in 1(a) above is based upon this *k/t* alternation, with *kṣ* developing > *(k)kh*, and also (via *ts*) > *(c)ch*.

When discussing these sound changes, we can be certain that they are pre-MIA in their origin, because they are based upon developments which rely upon consonant groups being in their pre-MIA form, i.e. the change of voiced velar + sibilant to *(j)jh* and *(g)gh* must have occurred before the change to *kṣ*, and the change of *st-* to *sk-*, etc., must have occurred before the development of *st* to *(t)th*.

2. Vocabulary

Just as classical Sanskrit preserves words not attested in the earlier period of IA, which can nevertheless clearly be shown to be inherited from IE, e.g. *parut-* "last year" (cf. Greek πέρυσι), so too MIA includes vocabulary which cannot at present be attested in OIA, e.g. Pāli, etc., *cha* "six" < **kṣaṭ-* or *kṣvaṭ-* (Emmerick 1992: 169), besides *sa* < Skt *ṣaṭ-*[11]; Niya Pkt *a(t)ṭa*[12] "flour", cf. Persian *ārd* < **ārta*; the Pkt particle *cia* (Bloch 1953: 229-30) "indeed", cf. Latin *quidem*; Apabhraṃśa Pkt *chāsi* (Alsdorf 1937: 39) "cheese", cf. Latin *caseus*; Pāli *bhiyyo* (Bloch 1934: 14) "more" (showing the root **bhī* as opposed to Skt *bhū-* in *bhūyas*), cf. Old Persian *biyā* and Latin *fio*; Pkt *dāvei* (Norman 1971: 331-33) "to show" (derived from the causative stem of the root **darp-*), cf. Khotanese *drauda* and Greek δρώπτειν; Pāli *sāmaṃ* (Wackernagel 1896: xxi) "oneself", cf. Avestan *hāmo*; Pkt *se*[13] (third person enclitic pronoun), cf. Avestan *he* and *še*; Pāli *para* "worm" in the compound *para-bhatta* "food for worms", from the root **par-* "to pierce", cf. Khotanese *para* "worm" (Bailey 1961: 58); Pāli *siñc-* "to bale (a boat)", i.e. "to empty out water, to dry", giving three meanings for the root *sic-*, viz. "to sprinkle", "to satiate", and "to dry" exactly as for Iranian *haik-*

[11] E.g. in *saḷ-āyatana* "six sense faculties".

[12] See Turner 1966: § 1338. Emeneau doubted that Hindi *āṭā* "meal" could be derived from Indo-Iranian **ar* "to grind" (1966: 135), presumably because the Niya form was unknown to him.

[13] Wackernagel 1896: xx Alternatively, this could have developed on the analogy of *me* and *te*. A third explanation (< *asya*) was given by Scheller (1967: 1-53). Emeneau suggested (1966: 134) that *se* is an analogical development, but nevertheless the clear relationship between Pāli *sāmaṃ* and Avestan *hāmo* suggests to me that there is a similar relationship between Pkt *se* and Avestan *še* and *he*.

(Bailey 1958: 531); Aśokan Pkt *godh-* "to bind" in the noun *aparigodha* "unbinding, releasing", cf. Khotanese *uysgunīndä* "uncover, reveal" (Bailey 1967: 27); Pkt *pammi* (Burrow 1971: 542) "hand" (< **parmi* < **palmi*), cf. Latin *palma*; Pāli *pāṇika* (Burrow 1979: 45) "kind of spoon", cf. Greek σφήν, Old English *spōn*.

If these etymologies are accepted as correct, then it is certain that all these words are examples of forms which are older than OIA, but not attested there.

3. Roots and stems

3a. Verbs

(i) It is very likely that dialectal variation is to be regarded as the cause of a phenomenon which has occasioned discussion in the past, namely the so-called transference of roots from one conjugational class to another in MIA. There are many examples of MIA verbs being conjugated in classes other than those in which they appear in Sanskrit, e.g.

(α) *ci-* "to collect" and *prāp-* "to arrive" are in the *no/nu* class (= Class V) in Skt, but appear in Pāli as *vi-cināti* and *papuṇāti*, i.e. in the *nā/nī* class (= Class IX); *vraj-* "to proceed" (= Class I in Skt) appears as Pkt *vaññadi* < * *vraj-ñā-ti* (= Class IX); from *vā-* "to weave" Skt forms *vayati* (= Class IV), but Pāli forms *vināti* (= Class IX).

(β) Conjugation in the unaccented *a* class (= Class I) is seen in the case of Pkt *maṇai* < * *manati*, as well as *maṇṇai* < *manyate* (= Class IV); Pkt *samai* "to be quiet" is < * *śamati* (*śamet* occurs in Epic Skt, and presumably represents this same MIA form), while *sammai* also occurs < *śāmyati* (= Class IV); Pkt *kisai* "to be thin" < **kṛśati*, cf. Skt *kṛśyati*.

(γ) Conjugation in the accented *á* class (= Class VI) sometimes occurs in MIA with the corresponding reduction in the grade of the root vowel, e.g. Pkt *huvai* "to be" < * *bhuváti*, cf. Skt *bhavati*; Pkt *sirai* "to flow" < **siráti*, cf. Skt *sarati*; Pkt *pahuvai* "to run" < * *pradhuváti*, cf. Skt *pradhāvati*; Pāli *supati* "to sleep" < * *supáti*, cf. Skt *svapati*; the unique Skt form *upet* showing the weak grade of a root beginning with a semivowel is paralleled by Pkt *udāsi* "he said" < **udáti*, cf. Skt *vadati*.

(δ) Of verbs with a nasal infix in Skt, *lip-* "to smear" is found without it in Pkt *allivai* < * *lipati*, not *limpati*; Pkt *muai* "to release" is < **mucati*, not *muñcati*; Pāli *pisati* "to crush" is < **piṣati*, not *piṃṣati*; Pāli *vihesati* not only lacks the nasal of Skt *hiṃs-* "to injure", but also has a different grade of vowel. Conversely, Pkt *niaṃsaṇa* "clothing" (< * *nivaṃsana*) is formed from *vaṃs-*, a nasalised form of Skt *vas-*.

(ε) The conjugation of some MIA roots in *-ā* differs from Skt, e.g. Pkt *ṭhāi* < * *sthāti* (= Class II) and *ṭhāai* < * *sthāyati* (= Class IV) from *sthā-* "to stand", as well as *tiṭṭhati* < Skt *tiṣṭhati;* Pāli *vāyati* "to weave" < *vā-*, cf. Skt *vayati*; Pkt *ṇādi* < * *jñāti* "to know", cf. Skt *jānāti* and *jānati*; from *mnā-* "to note", Pāli *munāti*[14] (with the svarabhakti *-u-*), cf. Skt *manati.*

(ζ) Some MIA roots in *-ā* are conjugated in Class IV by adding *-ya-* to the weak grade of these roots (= *-a-*) (Burrow 1979: 13), e.g. Pāli *ādeti* "to take" < * *ādayati* (*dā-*); Pāli *uṭṭheti* "to stand up" < * *uṭṭhayati* (*sthā-*); Pāli *ābheti* "to shine" < * *ābhayati* (*bhā-*); Pāli *samādheti* "to put together" < * *samādhayati* (*dhā-*); Pkt *layai* "to take" < * *layati* (*lā-*); Pkt *maia* "made" < * *mayita*, past participle of * *mayati* (*mā-*) (Norman 1976A: 337-38).

(ii) As is well known, verbal roots sometimes appear with various extensions, e.g. beside the simple root *yu-* "to join", we also find Skt *yuj-* and *yut-* with the same meanings. Occasionally we find in MIA a root with an extension not attested in Skt, or alternatively a verb found only with an extension in Skt occurs in MIA without the extension, e.g. the IE root *wer-* "to cut" is found with a *-dh-* extension in Skt *vardh-*, but it occurs in the simple form *var-* in Pkt *nivvarai* (Burrow 1979: 47) "to cut". Conversely, from the root *ghar-* "to take, hold", found in the Ṛgveda, there is an extension with *-p-* in Pkt *gheppai* (passive) "to be taken, held" < * *ghṛpyati.*[15]

(iii) MIA also shows a number of secondary formations, causatives and past participles, which are clearly based upon grades of the roots which differ from forms found in Skt, e.g. from the root *sthā-* "to stand" there is a causative *sthāpayati* "to make to stand" in Skt, but a weak grade form *ṭhapeti* (Burrow 1979: 49) in Pāli; from the root *tvar-* "to hurry" there is a past participle *tvarita* in Skt, but Pāli has the two weak grade forms *turita* (from *tur-*) and *tuvaṭa* (from *tvṛ-*) (Norman 1965: 114). From the root *mā-* "to measure" there is a weak grade past participle *m-i-ta* in Skt, but a different form of the weak grade *ma-ta*[16] in Pāli.

3b. Nouns

There are in MIA a number of nouns, adjectives, etc., which differ from the forms found in Sanskrit by reason of the grade of the root they show; for example, Pāli *uddhana* (Burrow 1979: 33) "fireplace", cf. Skt *uddhāna*; Pāli *thīna* (Norman 1958: 44-50) "sloth", cf. Skt *styāna*; Pkt *mettā* "measure" < * *mitrā*[17]

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[14] Norman 1961: 350: note 6.

[15] Despite Emeneau (1966: 134), the same root *ghar-* probably underlies MIA *ghara* "a house", cf. Skt *gṛha* "a house" from *gṛh-* "to hold", and *garbha* "a room, womb" from *gṛbh-* "to hold".

[16] In the compound *anamatagga* "with unmeasurable end". See Burrow 1979: 42.

[17] Showing the same grade as is found in the past participle *mita.* Emeneau (1966: 134).doubted whether this could be directly compared with Greek μέτρον.

cf. Sanskrit *mātrā*; Pāli *supina* "sleep" < * *supna*,[18] cf. Greek ὕπνος and Skt *svapna*; Pāli *duka* "pair", cf. Latin *du-plex* and Skt *dvaka*.

As has been pointed out elsewhere,[19] the reasons for vowel gradation occurring in IE were presumably connected with accent shift. From the frequently unhistoric positions of accents in OIA, it is clear that the conditions which produced such alternations were no longer operative in MIA. It follows therefore that the forms quoted which show a different grade of root from that found in Sanskrit are likely to be pre-MIA.[20] It would be possible to deny this if we could point to some other reason for the difference, e.g. the working of analogy or the levelling out of different forms, but in the majority (at least) of the exam-ples given above, no such compelling reason can be seen. In verbal conjugation there is a tendency for all verbs to be made "regular" and to be conjugated in the thematic *a*-classes (Edgerton 1954: 80). This clearly has no bearing upon such changes as that from Class V to Class IX. As far as the other forms are concerned, we can again postulate that the difference must have arisen in pre-MIA times, because they depend upon pre-MIA phonology, i.e. they could only have occurred before the typical phonological developments of MIA had taken place, e.g. the replacement of *prāpnoti* by **prāpnāti* must have occurred before the change of *-pn-* > *-pp-*. Once the development to *pappoti* had taken place in MIA, there was no way in which the form *pāpuṇāti* could have been evolved.

4. Suffixes

One of the most distinctive features of dialect variation in MIA is the difference of suffix from that found in OIA:

(a) Some differences arise from a change of grade in the suffix, e.g. the absolutive endings *-tūna(ṃ)* and -tu are weak grade forms of *-tvāna(ṃ)* and *-tvā* (Norman 1958: 46) respectively; the future forms in *-ihii* are to be derived from **-iṣ-i-ti*, which is probably to be regarded as a weak grade form of Skt *-iṣ-ya-ti* (Smith 1952: 169 ff.); Pāli *-agga* "house" is to be derived from **ag-ra*, as opp-

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[18] Emeneau was probably correct (1966: 133) in seeing this as an analogical form, based upon the grade of the root seen in the past participle *supta*, rather than an example of a weak-grade IE formation, i.e. it is simply a coincidence that Greek ὕπνος and Pāli *supina* are based upon the weak grade of the root. Even if it is merely analogical it must, nevertheless, be pre-MIA, since it must go back to a time before MIA *sutta* had evolved. It could, alternatively, be taken as an example of labialisation: *svapna* > * *svupna* > **ssupna* > * *supna* > *supina*, but this too must go back to a pre-MIA stage, when *sv* had not yet assimilated to (*s*)*s*.

[19] Norman 1958: 50. Burrow (1979: 39) confirmed this with his statement "the ablaut shows (it) goes back to early IE times".

[20] Emeneau (1966: 132) stated: "It is *a priori* unlikely that MIA ... will preserve, for example, ablaut grades that are divergent from those found in OIA, considering that the OIA ablaut structure no longer exists anywhere in MIA".

osed to the more common *ag-āra*; conversely MIA sometimes shows a stronger grade of the suffix than appears in Skt, e.g. Pkt *aṇa-cchiyāra* "unbroken" is to be derived from * *chid-āra* (Norman 1966: 77-78), where Skt has *chid-ra* "hole"; Pkt *poāla* "young animal" is to be derived from * *potāla*, where BHS has *potala-ka*.

As before, variation due to vowel gradation must be presumed to be pre-MIA, as must any development which depends upon pre-MIA phonology.

(b) In Skt, past participles are formed by the addition of *-ta* or, less commonly, *-na*. A number of MIA verbs form their past participles by adding *-na* whereas in Skt they take *-ta*, e.g. Pāli *dinna* "given" < * *di-(n)na* (Burrow 1979: 38), cf. Skt *datta*; Pkt *ghusiṇa* "rubbed" < * *ghṛṣ-ṇa*, cf. Skt *ghṛṣṭa*; Pkt *ummilla* "opened" < * *unmīl-na*, cf. Skt *unmīlita*; Pāli *ruṇṇa* "wept" < * *rud-na*, cf. Skt *rudita*.

Since there was a general MIA tendency to produce "regular" past participles by adding the suffix *-i-ta*, we may assume that any forms with *-na* are early. They must, in any case, pre-date the development of the MIA phonological changes.

(c) There was a continual IA tendency towards the evolution of the so-called *seṭ* forms, i.e. forms with the linking vowel *-i-* (Burrow 1979: 8, 92, 116). It may be concluded, therefore, that any *aniṭ* forms (those without *-i-*) are earlier, and any such MIA forms are survivals from OIA, rather than innovations. We find:

(i) verbal forms, e.g. Pāli *kassati* < * *kar-ṣyati*, cf. Skt *kar-i-ṣyati*; Pāli *vihassati* < * *vihar-ṣyati*, cf. Skt *vihar-i-ṣyati*; Pāli *gacchaṃ* "I shall go" < * *gaṃ(t)-syāmi* (Berger 1954), with the secondary ending *-aṃ*, cf. Skt *gam-i-ṣyati*; Gāndhārī Pkt *bromi* "I say" < * *bro-mi*, cf. Skt *brav-īmi* < * *bro-ī-mi* (Burrow 1979: 7).

(ii) past participles, e.g. Pkt *laṭṭha* "desired" < * *laṣṭa*, cf. Skt *laṣita*; Pāli *bhaṭṭha* "spoken" < * *bhāṣṭa*, cf. Skt *bhāṣita*; Pāli *patta* "fallen" in the compound *patta-kkhandha* "with drooping shoulders" < * *patta*, cf. Skt *patita*; Pāli *tuvaṭa* "quickly" < * *tvṛta* (Norman 1965: 114), cf. Skt *tvarita*; Pkt *ummilla* "opened" < * *unmīlna*, cf. Skt *unmīlita*; Pāli *ruṇṇa* "wept" < * *rud-na*, cf. Skt *rudita*.

(iii) nouns, e.g. Pkt *dhūdā* and *dhūyā* "daughter" < * *duh-tar*, cf. Skt *duh-i-tar* (Burrow 1979: 4).

(d) Sometimes MIA formations show a different suffix from that found in OIA. Occasionally it can be shown that the variation goes back to IE, e.g. Pāli *nhāru* "sinew" < * *snāru*, as opposed to Skt *snāyu*, shows a distinction which is to be compared with Greek νεῦρον and Avestan *snāvarə* (Wackernagel 1896: xxi). It is probable that the endings found in Pāli *idha* "here" (which shows an older form of the suffix *-dha* than Skt *iha*), and Pāli *sabbadhi* "everywhere" (which shows a suffix akin to the Greek suffix -θι) also go back to OIA dialects. Sometimes the variation can be paralleled within IA, e.g. Pāli *candimā* "moon" when compared with Skt *candramas* shows the same variation of *-i* and

-ra as is found in Skt *śuci* and *śukra* (Smith 1954: 1372). For other variations of suffix, cf. Pkt *raṇhu* "ray" < * *raś-nu* with Skt *raś-mi* (Norman 1961: 348), Pkt *docca* "second" < * *du-tya*[21] with Skt *dvi-tīya*, and Pkt *tacca* "third" < * *tṛ-tya* with Skt *tṛ-tīya*. The same *-tya* suffix is found in Pāli *ekacca*, Aśokan Pkt *ekatiya* < * *eka-tya*, which is not attested in classical Sanskrit.

Where the parallel is with some other branch of IE, it is obvious that the MIA form cannot be an innovation. In the case of the other forms, it is clear that most of them must predate the MIA phonological developments, because once assimilation and other changes had occurred there was no possibility of variation arising, i.e. when *raśmi* had become *ramhi* there was no way that *raṇhu* could evolve.

Within the limits of this paper, it has not been possible to do more than touch upon these four categories and no aim at completeness is made even within this limited field. The criteria which have been employed to show that the forms are pre-MIA are:

(1) the existence of cognates in other IE languages,

(2) the appearance of pre-MIA vowel gradation,

(3) evidence that the forms could only have evolved before the phonological changes which are characteristic of MIA had taken place, and

(4) the demonstration that the forms are inconsistent with the general pattern of regularisation and levelling-out which took place in MIA.

I hope, therefore, that it may be taken as proven that the evidence for the derivation of MIA material from unattested OIA antecedents is more extensive than Emeneau thought. As in the case of the palatalised (Norman 1976a: 328-42) and labialised vowels which I have discussed elsewhere (Norman 1976b: 41-58), I believe that although individual items can sometimes be explained in other ways, the number of examples is such that, when they have all been collected together, no one can doubt the widespread existence of the phenomenon. While some of the OIA antecedents of these MIA forms may yet come to light in Sanskrit texts still awaiting discovery or publication, there can be little doubt that the majority of them belong to long-lost non-Ṛgvedic dialects of OIA.

I take this dialect variety to support a view that dialect variation had already begun to take place among the speakers of IA languages from a very early time, probably as a result of the fact that even before they moved into India they were already split into a number of groups, separated geographically. Such dialect variation was increased as a result of movement into India at different times, with further geographical separation after their arrival.

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[21] Showing the same *du-* grade as *duka* (see 3(b) above).

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Richard Salomon

13. On drawing socio-linguistic distinctions in Old Indo-Aryan: The question of Kṣatriya Sanskrit and related problems

I. Introductory Comments: The Notion of "Kṣatriya Sanskrit"

From time to time one comes across references in various Indological writings to something called "Kṣatriya Sanskrit," [1] with references to the variety (or, if one prefers, dialect) of Sanskrit attested in the epics and several other genres of non- and pre-classical literature. Such references are usually phrased rather casually, without much in the way of explanation or justification for this socio-dialectal designation. The ultimate source of this concept seems to be (as far as I have been able to trace it) the statement of Keith (1920: 13) that "in the epic speech we have doubtless the form of language used by the Kṣatriyas and the better educated of the Vaiçyas during the period when the poems took shape." This somewhat pontifical pronouncement (note the ever-dangerous word "doubtless"!) appears not to have been subjected to much in the way of careful scrutiny. Indeed, with a few notable exceptions (especially Mansion 1931, as discussed below), the entire problem of sociological variations in Old Indo-Aryan (OIA) has not been examined in any comprehensive way, and it is this question - i.e. the matter of a so-called "Kṣatriya Sanskrit" in particular, and the broader socio-linguistic implications of this notion - that I propose to address in the present paper.[2] I should make it clear from the outset that I do not pretend to offer any earth-shaking new insights or radically different points of view.

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1 Recently, for example, in Brockington 1982: 21: "the epic language is obviously based on the speech of the Kṣatriyas".

2 With regard to the notion of "Kṣatriya Sanskrit," I have briefly commented elsewhere (Salomon 1989: 278) that "While there may be something to this hypothesis, it is probably at best an over-simplification. Although caste affiliations and status were surely not entirely irrelevant to dialect variation in Sanskrit and OIA, they were by no means its sole determinant either." Cf. also Salomon 1986: 49, though the views expressed there should be modified according to what is presented below.

After all, those of us who work in the field are labouring under the same severe limitations of sources, so that the possibilities for fundamentally new discoveries are limited indeed; and what I have to say will draw heavily on the work of prominent earlier scholars such as Wackernagel, Renou, Rapson, and Mansion. Nevertheless, this question seems to me to be worthy of further investigation, and it may be possible at least to reach a somewhat higher degree of clarity than has prevailed to date.

The variety of Sanskrit referred to in this connection, i.e. the so-called Kṣatriya Sanskrit, is embodied first of all in the language of the epics, with all of its well-known peculiarities (from the point of view of standard Pāṇinian/classical usage): shifts of voice (*parasmaipada* instead of *ātmanepada* or vice versa), non-standard or absent *sandhi*, non-standard gerunds of the type *gṛhya* and *vimuktvā*, non-standard finite verbal forms such as first person plural presents in *-ma*, extension of the *iṭ* affix, and so on. But in broader terms, these features are also characteristic of the language of a much wider spectrum of non-classical literature; they are found, with varying degrees of frequency and consistency, in certain later Vedic texts, mainly some of the Sūtras and (especially) Upaniṣads; in most of the Purāṇas; in many of the Buddhist and Buddhist Hybrid Sanskrit texts; in some varieties of inscriptional Sanskrit; and sporadically in various non-*kāvya* texts of the classical and post-classical era.[3] All of these texts and genres can be seen in broad terms as manifestations, to varying degrees and under varying circumstances, of the same underlying linguistic phenomena. They constitute, in other words, what might be called a dialect or, perhaps better still, a dialect group, to which have been applied various terms beside the "Kṣatriya Sanskrit" normally used with reference to the epic variety in particular: the alternative names include "Umgangssprache" (Wackernagel 1896: xlii); "sanskrit vulgaire" (Renou 1956: 117); "colloquial Sanskrit" (Raghavan 1955: 314); "spoken Sanskrit" (Sen 1958: 35ff.); "Vernacular Sanskrit" (Salomon 1986: 45), etc. It is not particularly important which term one chooses to designate this phenomenon; what matters is that there is such a common dialect substratum underlying all these literary artifacts, and this much is nowadays, I believe, generally agreed to by most Indologists. The common feature of the various designations ("popular," "colloquial," etc.) is a sense that the "dialect" in question belongs to a less formal register than that of classical Sanskrit in the strict sense; not necessarily a colloquial or vernacular language in the full sense of the term, but one which partakes, at least in part, of the characteristics thereof. The question to be pursued here is whether this evident dialectal, or sub-dialectal, distinction between, in broad terms, "formal" or "classical" Sanskrit on the one hand and "informal" or "vernacular" Sanskrit on the other, is primarily attributable to sociolinguistic

[3] I have discussed the extent and significance of these features in various literary genres in serveral articles listed in the Bibliography. A general survey of this material is given in Salomon 1989.

differences, whether phrased in terms of *varṇa*, "caste," or ethnicity; and more specifically, whether the notion of a dichotomy between "Brahman" and "Kṣatriya" Sanskrit has any validity, and if so whether this dichotomy underlies the broader distinction between "formal" and "vernacular" Sanskrit.

II. Some Theoretical Questions: the Notion of "Dialects" in Old Indo-Aryan

It can presumably be assumed that, like any other language or language group spoken by a large population over a wide geographical area, OIA must, in theory at least, have had dialectal varieties based on geographical, social, and possibly also other factors. Indeed, the evidence for such dialect variation in the earlier stages of OIA, i.e. for the Vedic and particularly the Ṛgvedic period, is clear, if controversial as to its details and interpretation; but this aspect of the question is best left to Vedic specialists, and will not be addressed in this paper. I am concerned here with the linguistic developments outside of and presumably later than the early Vedic sphere. I would nevertheless prefer to avoid giving any specific dates for the developments in question, for reasons that those who are acquainted with the field will certainly understand, and hopefully excuse; suffice it to say that we are concerned here with dialectal developments which probably begin in the later Vedic period, but whose ramifications continue to have their effects for many centuries, even millennia, thereafter.

The usual, but somewhat superficial, view of the matter is that dialectal variation effectively ceased to exist in OIA - i.e., in Sanskrit - from the time of the standardisation of the language by the grammarian Pāṇini, around the fourth century B.C. or possibly somewhat earlier. But this assumption is by no means entirely correct; linguistic variations whose roots probably go back before the time of Pāṇini *do* survive after him, because, among other reasons, their use by sages such as Vyāsa and Vālmīki lends them a *de facto* validity despite their violations of the equally authoritative (in their sphere) rules of Pāṇini. These non-standard forms are thus traditionally understood as *ārṣa-prayoga*, "usages of the sages," and are not only retained (in many, though not all cases) in the texts but sometimes even imitated, presumably consciously, in later literary compositions. In this sense, then, dialectal variation was not really totally eliminated from OIA by Pāṇini and the other grammarians, in that what must have originally been true dialectal variants have survived as frozen literary or stylistic variations. Our purpose, then, is to try to determine - insofar as the rather limited materials and data will permit us to - the original dialectal sources of these variations.

I propose to operate here on the assumption that dialectal variation in early South Asia worked on the same essential principles that apply anywhere else in the world, ancient or modern; that is, that dialectal variations reflect the different modes of speech used at different times, in different geographical regions, and by members of different social groups.[4] The problem here is that the artifacts of dialectal variation in OIA tend not, in the literary guise in which they have come down to us, to reveal much about their origins in these terms. For what we have, for the most part, are purely literary artifacts, texts which very effectively resist identification in terms of chronological and geographical provenance. This is why, from a practical point of view, linguistic or dialectal varieties of OIA are best discussed in terms of literary genres - epic, Purāṇic, Upaniṣadic, Buddhist, etc. - rather than in terms of places, social groups, etc.; in the words of Renou (1956: 89), "La notion de "genre littéraire" est bien plus importante dans l'Inde que la différence proprement linguistique ou l' étagement chronique des faits."[5] But while it is true that the extant literary documents are framed in such a way as to blur the original linguistic data, we can nevertheless assume that their dialectal features do ultimately have a basis in the linguistic reality of OIA; i.e. that they are reflections, at least, of original geographic and/or sociological dialectal variation.

Unfortunately, due mainly to practically insoluble problems involved in pinning down with any precision the dates and geographical provenance of Old Indic literary compositions,[6] in most cases we cannot clearly specify the presumptive dialectal origins of non-standard varieties of OIA. As to the "vernacular Sanskrit" complex sketched above, we can only broadly speculate that it reflects characteristics of the language(s) of some region or regions of central northern India in the late Vedic and early post-Vedic period, as opposed to Pāṇinian/classical Sanskrit which is presumed to be based in the more conservative and prestigious language of the grammarian's homeland in the far northwest (cf. Salomon 1986: 48-9); any more specific geographical and chronological identification than this would be little more than guess-work.

III. "Kṣatriya Sanskrit": Is the Term Justified?

An examination of the sociolinguistic origins of the non-standard dialects of OIA, and specifically of the "Vernacular Sanskrit" complex, does hold at least

[4] Cf, Rapson 1904: 444-5; Mansion 1931: 149-50 for comparisons of the dialectal origins of standard Sanskrit with those of standard English and other languages.

[5] Cf. also Gonda 1971: 17 (who recommends avoiding the term "dialect" entirely); and Bloch 1965: 22.

[6] With a few exceptions, most notably the Ṛgveda, whose geographic references permit us to determine, in broad terms at least, its places of composition.

greater promise of success than that of their almost hopelessly obscured chronological and geographical background. It is here that the notion of "Kṣatriya Sanskrit" arises; first of all, no doubt, because these non-standard dialect features were first noted and are most clearly and abundantly attested in the epics, with their strong Kṣatriya associations. But it also seems that "the Kṣatriyas" have sometimes been assumed as a sort of default category, the line of thought being apparently something like this: Sanskrit is the language of the Brahmans; but some types of Sanskrit are sub-standard, and hence presumably non-Brahman; Kṣatriyas are the next in line in the (ideal) social hierarchy of traditional India; hence, substandard forms of Sanskrit are attributable to the Kṣatriya stratum.

The influence of this type of argumentation is detectable, for example, in the formulations of Schmid (1963: 38-41), who argues that the OIA future tense in *(i)ṣya-*, being untraceable from Indo-European and only rarely used in the Ṛgveda, must have developed in a "Sprachschicht" other than that of the "Priestersprache", and thus attributes the innovation to an "Umgangs-(Krieger?-)Sprache". While he offers some justification for this hypothesis, for example noting that a fair proportion of the relatively few future forms in the Ṛgveda are built on verbs in the Kṣatriya-like semantic sphere of warfare and conflict (roots such as √*san* "win", √*as* "hurl", etc.; Schmid 1963: 35), such evidence is obviously less than compelling. Here I do not intend to dismiss or belittle Schmid's approach; on the contrary, his hesitant presentation (note the question mark in "(Krieger?) -Sprache") is to be commended. Rather, I cite it only to demonstrate the need for a closer and more detailed examination of the question of "Kṣatriya Sanskrit".[7]

A necessary preliminary to such an examination is to determine whether Kṣatriyas were in fact speakers of "Sanskrit", i.e. of OIA, at all in the period in question, namely the late Vedic/transitional classical period. Classical literature, particularly the drama in which the Kṣatriya characters always speak Sanskrit, would suggest that this was the case, but this is of course a later literary convention and hence not conclusive for the period in question. One of the few penetrating examinations of this problem is found in the characteristically thoughtful comments of Mansion (1931: 78-79, 138), who cautiously concludes that Sanskrit must have been spoken by at least some members of the Kṣatriya community at certain points in history.

Once it is accepted, as I think it can be, that Sanskrit was the language of at least some of the Kṣatriyas, we can finally turn to our main point, namely the question of whether the non-standard language of the epics etc. can be speci-

[7] It is interesting to observe in this connection that Schmid attributes the analogical extension of the future formation with the *iṭ* affix (i.e. futures in *iṣya*) in particular to the Kṣatriya "Sprach-schicht" (1963: 38), since the further extension of this feature is characteristic of the "Vernacular" Sanskrit of the epics etc. as well (cf. Salomon 1986: 42-3).

fically associated with them as a sociolect. Given the lack of solid historical data for this period, we can approach the problem only by associative methods; i.e. by considering whether the literary artifacts of the dialect in question can be specifically connected with the Kṣatriya community. As for the epics, as already noted, the answer is of course a resounding - though not unqualified - affirmative. The epics are by their very nature and subject matter Kṣatriya literature *par excellence*, though this by no means proves that the epic language represents a "Kṣatriya dialect" pure and simple. The epics as we have them today are, in theory at least, the compositions of bards, *sūtas*,[8] whose exact social standing is somewhat ambiguous; and in any case the texts have been heavily influenced by and overlaid with Brāhmanic ideology. For these reasons we certainly cannot assume that epic Sanskrit *equals* Kṣatriya Sanskrit pure and simple. Indeed the very notion of a "Kṣatriya literature" as distinct from "Brahman literature", as posited by (among others) F.E. Pargiter, has been largely discredited,[9] and the prevailing view is that "there have never been in India two such water-tight compartments as the Brāhmaṇa [tradition] and the Kṣatriya tradition."[10] The upshot of all this is that the language of the extant epics can certainly be associated, in a loose and general way, with the Kṣatriyas, but cannot be attributed to them exclusively, given the complex cultural and literary situation involved.

The related question of the languages of the Purāṇas, which as noted above in general resembles that of the epics, points in the same direction. Pargiter's idea that they are part of the supposed Kṣatriya literature mentioned above seems to have been based on an overvaluation of the dynastic chronicle portions of the Purāṇas (presumably reflecting his own cultural presupposition about the concept and importance of "history" in the western sense of the term), and is also nowadays discredited. The Purāṇas, as texts, are usually considered to belong, in a very general way, to the "Brāhmanical" cultural sphere. But their linguistic resemblance to the "Kṣatriya" epics (see Salomon 1986 and Salomon 1989: 278-9 for details) is best attributed to a more or less deliberate imitation of the very influential language and style of the epics, which had become established as a literary medium in its own right; therefore its employment in the "Brāhmanical" Purāṇas does not disprove the possibility of a Kṣatriya origin.

The occurrence of numerous "vernacular" or epic-like features in certain early Upaniṣads (Salomon 1981, 1991) is particularly interesting, and potentially revealing for the question of their sociolinguistic background. First of all,

[8] On the question of the language used by the bards, see Mansion 1931: 136.

[9] For details and references, see Rocher 1986: 125-7.

[10] A.D. Pusalker, *The Vedic Age* (History and Culture of the Indian People. Volume 1), p. 309, quoted in Rocher 1986: 126-7. Similarly discredited, and hence not considered any further here, is the theory that the linguistic peculiarities of the epics etc. are the remnants of a Prakrit original which was incompletely and imperfectly translated into Sanskrit (Mansion 1931: 135-142; Rocher 1986: 127-9).

there is the general association - in the opinion of some scholars, at least - of the Upaniṣads with the Kṣatriyas. Admittedly, this idea is by no means beyond argument, but there are some cogent reasons to think that Kṣatriyas had at least a strong influence on the composition of the Upaniṣads and the formulation of the ideas espoused therein. A compelling argument in favour of this view is given by Horsch (1966: 432-441), who holds (428) that "der Anteil der Kṣatriyas an der hier untersuchten Literatur[11] ist gewaltig, überwiegt sogar den der Brahmanen." According to Horsch (among others), the revolutionary ideas of the early Upaniṣads about rebirth, *karma*, *ātman* and *brahman* are the contribution of Kṣatriyas rather than Brahmans. This is indicated, first of all, by the attribution in the texts themselves (especially in the earliest Upaniṣads, the Bṛhadāraṇyaka and Chāndogya) of crucial passages and ideas to Kṣatriya teachers: to note one particularly compelling example, in Chāndogya 5.3.7 the king Pravāhaṇa Jaibali tells the Brahman Gautama Āruṇi, with regard to the secrets of death and rebirth, that "This knowledge has never come to Brahmans before you; and that is why in all the worlds rulership has belonged to the Kṣatriyas alone."[12]

Secondly, the distribution of non-standard linguistic features within the Upaniṣads also points toward a possible association with Kṣatriyas. The earliest Upaniṣads on which Horsch largely bases his conclusions are less striking in this respect, although we do find in the Chāndogya in particular some instances of non-standard "Umgangssprache" or "volkstümlich" usages (Salomon 1991: p. 55-6, n.20 and p. 63) which could be seen as forerunners of the later epic-vernacular Sanskrit. But it is in some of the slightly later Upaniṣads that we find the epic-vernacular language more clearly and abundantly represented; particularly in the Muṇḍaka (Salomon 1981) and Praśna (Salomon 1991), each of which have non-standard forms numbering in the dozens, most of them with direct parallels in the Sanskrit of the epics and other "vernacular" Sanskrit texts. Other Upaniṣads, mainly the Kaṭha and Śvetāśvatara, also exhibit similar features, though less prominently than the Muṇḍaka and Praśna. What is interesting here is that there is a clear preponderance of these non-standard features in Upaniṣads of the Atharvaveda. The most "vernacular" ones, the Muṇḍaka and the Praśna, belong to the Artharvaveda, and the Kaṭha also is generally associated with it, although its affiliations are somewhat uncertain. It is true that such features also appear in some Upaniṣads affiliated with other Vedas, notably the Śvetāśvatara and Maitrī (see Tsuji 1955), both of which belong to the Black Yajur-Veda, but these appear to be somewhat later and may reflect secondary dialectal influences. However that may be, it is clear that epic-vernacular linguistic features strongly

[11] Here Horsch is referring specifically to "Gāthā- und Śloka-Literatur," but as his subsequent arguments show, this is closely related to the Upaniṣads.

[12] *iyaṃ na prāk tvattaḥ purā vidyā brāhmaṇān gacchati tasmād u sarveṣu lokeṣu kṣattrasyaiva praśāsanam abhūd iti.*

predominate in the Upaniṣads of the Atharva Veda; and it is precisely this Veda which has been associated with the Kṣatriya traditions (e.g. Bloomfield 1899: 10, 73-4) on the basis both of its contents and of external testimonia (notably the passage in Bṛhadāraṇyaka Upaniṣad 5.13.1-4, which "seems to view the fourth Veda as the Veda of the Kshatriyas" (Bloomfield 1897: xxv).

So we find that among the Upaniṣads, which contain what are probably the earliest specimens of what can be called "Vernacular Sanskrit," such dialectal features are most numerous and clearly attested in Upaniṣads associated with the "Kṣatriya" Atharva Veda. Thus, as in the previously discussed cases, the linguistic data from the Upaniṣads suggest - but do not prove - a link with a Kṣatriya dialect; though once again the nature of the connections is indirect and uncertain, and hence not conclusive in and of itself.

Much the same is true, *mutas mutandis*, of the other literary genres which exhibit features of the epic-Vernacular variety of Sanskrit. In several strata of Buddhist literature, for example, such characteristics are manifested to a greater or lesser degree (e.g. Salomon 1983). Here the matter is even more complicated, due to the very large and linguistically diverse character of the literary materials involved (see Salomon 1989: 279-282 for a brief summary), but it may be said in broad terms that most of the varieties of non-standard Sanskrit within the Buddhist tradition have many features in common with the other types of epic-Vernacular Sanskrit. And here again one may speak, in very broad terms at least, of a Kṣatriya connection, given the important (though by no means exclusive) Kṣatriya associations with Buddhism (beginning with the social identity of the founder of the tradition itself). But here the situation is far too complicated in historical, social, and linguistic terms to draw any simple conclusions.

IV. Conclusions

In sum, in the course of examining the sociological affiliations, in so far as they can be determined at all, of the various genres and bodies of literature embodying what we choose to call here "epic-Vernacular" dialect features, we do find a common pattern of affiliation or association, albeit in most cases partial and often uncertain or indirect, with the Kṣatriya *varṇa*. Although none of these genres can be definitively identified (*pace* Pargiter) as "Kṣatriya literature" pure and simple; and although in some cases the connections are somewhat tenuous; and although no one case is conclusive in and of itself, nevertheless the cumulative weight of the overall pattern is persuasive. In view of this regular association of literary genres in the "epic-Vernacular" sphere with the Kṣatriya class, it seems plausible to conclude that the linguistic features thereof do in fact reflect fea-

tures of the language(s) spoken by Kṣatriyas in the formative period of the later Vedic or post-Vedic era of Old Indo-Aryan.

But this is still not to say that the Sanskrit of the epics etc. *is* Kṣatriya dialect, pure and simple. All that we have established here is that it probably partakes of features of a dialect which was spoken by at least some Kṣatriyas. Thus Keith's statement, with which we began our discussion, that "in the epic speech we have doubtless the form of language used by the Kṣatriyas," is partly, but only partly, confirmed. We have no direct way to prove whether the dialect in question was common to *all* Kṣatriyas, or only some geographical or social subgroup thereof, or whether it was also spoken by other, non-Kṣatriya groups, as suggested by Keith, who includes among its speakers "the better educated of the Vaiçyas". Indeed, we can also not exclude the possibility that at least some Brahmans, too, spoke - at least sometimes - "Vernacular" Sanskrit. For we should not assume that social status was the sole determining factor in the choice of dialect. The dialect under discussion here is frequently, and probably correctly, referred to as "Umgangssprache," i.e. a vernacular parlance for common and practical usage, and it is more than likely that at least some speakers would diglossically alternate between the formal, high (i.e. Pāṇinian/classical) standard and the "vernacular" registers. As a matter of fact, in later literature at least, we have implicit and explicit references to such cases of register shift on the part of speakers and writers of Sanskrit, including both Brahmans and non-Brahmans (i.e. Buddhists; Salomon 1989: 289; Newman 1988: 129-131). As pointed out by Hock and Pandharipande (1976: 119), although "It is frequently assumed that the use of Sanskrit is entirely caste-determined," this is by no means necessarily the case; other factors, notably level of education, were at least as important, as in the cases of, on the one hand, the ignorant Prakrit-speaking Brahman *vidūṣṣaka* of the classical drama, and on the other, of Patañjali's famous Sanskrit-speaking charioteer; no doubt the same pattern of variation applied within the sub-varieties of Sanskrit as well.

Thus there may be a fundamental misconception in the very question of the "caste" affiliation of OIA (and perhaps other) dialects. While it is often assumed that dialect boundaries coincide with social boundaries of *varṇa* or caste, there is reason to suspect that this is not the truth, or at least not the whole truth. The best specimen of, or at least the closest thing to, a post-Vedic "dialect" of OIA, namely the epic-vernacular "Umgangssprache," seems to have been characteristic of, and perhaps had its origins among, Kṣatriyas, but it was certainly not restricted to them. In fact, I believe that the entire question of dialectology in ancient India has been fettered by a somewhat uncritical acceptance of arbitrary boundaries and labels, some of them imposed by the Indian tradition itself, others by the preconceptions of modern Western scholarship. The basic assumption is that there is and always was an absolute dichotomy between "Sanskrit" and "Prakrit" or, in modern terms, of OIA versus Middle Indo-Aryan

(MIA). I would not, of course, deny that there *are* such categories; but I do question their characterisation as separate, water-tight entities. It is true that this distinction, in various forms, is firmly rooted far back in the tradition itself, for example in Patañjali's citations of "apabhraṃśas," and even in the Buddha's distinction of *chandas* ("Vedic language"), from "one's own vernacular" (*sakiyā niruttiyā*). In early references such as these, we typically find a distinction between "Sanskrit" or "OIA" (*chandas*, *bhāṣā*, etc.) on the one hand and an undifferentiated "everything else,"[13] variously called Apabhraṃśa, "one's own dialect," etc. on the other. Only considerably later in the tradition do we find, notably in Bharata's Nāṭya-śāstra and in the Prakrit grammarians, a differentiation and analysis of the different "Prakrits" or "Apabhraṃśas". But even then the (theoretically) absolute, impenetrable dividing line between Sanskrit and everything else remains.

Of course, modern scholarship has established that this is not, from a historical point of view, entirely accurate; the numerous examples of "Prakritisms" in OIA from its earliest attested stage show that, in fact, the boundary line between "Sanskrit" and "Prakrit" was at least semi-permeable. The so-called "Mixed Dialects," namely "Buddhist Hybrid Sanskrit" and "Epigraphical Hybrid Sanskrit," further complicate the picture and indeed they have still not been explained in an entirely satisfactory manner; but in general, the tendency has been (at least until relatively recently) to view, and sometimes dismiss, the hybrids as some sort of exceptional and "artificial" linguistic construction, or to attribute them to some vaguely stated "influence" of Prakrit on Sanskrit or vice versa. In my view, however, what they show us is that the actual linguistic situation in ancient India was far more complex than the fragmentary literary artifacts on the one hand, and the rigid classical categories on the other, indicate. There must have been many more languages and/or dialects in simultaneous use than have come down to us,[14] and it may be more revealing to think of the actual linguistic situation as a dialect spectrum, with "correct" (Pāṇinian/ Classical/Standard) Sanskrit at one end, and "pure" colloquial MIA, such as is reflected (though perhaps not purely attested) in some literary and epigraphic specimens, at the other. Along this spectrum there would be, in theory at least, many possible degrees of Sanskritic and Prakritic speech; and from this point of view, as opposed to the

[13] Cf. Patañjali's well-known comment in the Paśpaśā that "for each and every word there are many corruptions ["apabhraṃśa-s"]" (*ekaikasyaiva śabdasya bahavo 'pabhraṃśāḥ*).

[14] Cf. Mansion 1931: 81: "Il ne nous paraît donc pas interdit de considérer comme à peu près contemporaines plusieurs formes d'ancien et de moyen indien, représentées respectivement par la *bhāṣā* de Pâṇini, le sanscrit épique, le prâcrit monumentale d'Açoka. Bien entendu, ces formes du langage écrit supposaient une bien plus grande variété de langages parlés." Cf. also Rapson 1904: 435, "There must have been in ancient India three thousand years ago, as there are in the India of today, many languages and many dialects of those languages."

rigid divisions of the normative tradition, the borderline between Sanskrit and Prakrit appears more shadowy and subjective.[15]

My concept of such a dialect spectrum is admittedly coloured by many years of delving in the lesser-known corners of epigraphic and other non-standard literature; to Indologists who are more immersed in the classical tradition my understanding might seem strange, perhaps even unacceptable. But I would hold to it nonetheless, for there is abundant attestation, especially in inscriptions and other documentary (as opposed to literary) texts, for the existence, at least in a somewhat later period, of all sorts and degrees of mixed dialects; and the literary remains of the earlier centuries give us at least hints that a similar situation prevailed then.

I would propose, then, that there was such a spectrum of dialects from a very early period, possibly even in Vedic times, and that many - conceivably even all - speakers of Indo-Aryan would have controlled not just a point on this spectrum, but rather a range of varying extent. Thus, for example, at the time of the original composition of the core of the epics a learned *śiṣṭa* Brahman might have controlled a range including the "correct" formal Sanskrit and the Umgangssprache, and possibly part of the MIA range as well; his range of comprehension, at least, would presumably include the Prakrit(s). A person of lower social standing would have controlled a different range; a Kṣatriya, for example, may have spoken as his mother tongue something like the Sanskrit Umgangssprache, but might also have been able to speak some varieties of MIA, and possibly of formal "high" Sanskrit as well. An uneducated person of low social status would, of course, be limited to a spoken command in the MIA range, but would probably have had some ability to comprehend the higher ranges. (That Sanskrit and Prakrit were mutually comprehensible even at a much later date is, of course, well attested by classical drama, in which characters of different social standings normally converse in different languages.) The selection of one or another sociolect by such speakers would be conditioned by the particular situation, e.g. by the identity of the speakers and/or audience, the subject under discussion, the degree of formality of the setting, etc.; in other words, dialect shifts were conditioned by essentially the same factors that govern diglossic (or polyglossic) situations in any other linguistic community, ancient or modern.

When viewed in this perspective, certain features of the Indo-Aryan languages which otherwise appear problematic become more easily comprehensible. The seemingly strange mixed dialects which arose in later centuries become much less so when considered in the light of a long tradition of dialect

[15] Cf. Thomas 1904: 469: "At the time with which we are concerned there was in India no un-mixed vernacular dialect, though no doubt the speech of the least cultivated classes would show fewest intrusions [from Sanskrit]"; and Mansion 1931: 137, "une interprétation rigide et absolue de l'opposition sanscrite: prâcrit conçue comme irréductible..."

shifts, diglossia, and register-switching; the vaguely-invoked "influences" alluded to above may thus be replaced by a more precise notion of voluntary selection of a particular register on the basis of such criteria as achieving a desired stylistic effect, maximizing comprehension, etc. And the frustrating problems, as discussed above, of identifying the social origins and affiliations of OIA dialects become less puzzling when we adopt the point of view of dialectal ranges along a spectrum, rather than of isolated and unconnected linguistic points. Members of a given social group would of course tend to cluster around the same area on the spectrum, but various factors, especially, as mentioned above, level of education, would cause significant variation.

To return once again to our original question, the "popular" or "Vernacular" Sanskrit represented in the epic-vernacular literature would seem to represent a slightly lower-status variant of the elite language, and seems, to judge by the available literary and cultural-historical data, to have been particularly associated with Kṣatriyas; it might even (though this cannot be proven) have originated among them. As a term of convenience, then, one may be justified in referring to "Kṣatriya Sanskrit," as long as the inherent limitations on the precision of such an essentially simplistic term are kept in mind. For what can loosely be labelled "Kṣatriya Sanskrit" was probably never the exclusive preserve of "the Kṣatriyas," but rather must also have been spoken and understood by a much broader sector of the population, including persons of both higher and lower status than the Kṣatriyas.

V. Further Theoretical and Methodological Ramifications

Though I would not wish to stretch the point too far, it may be reasonable to propose that some of the general comments made here concerning the relations between Indo-Aryan dialects could also be applied to broader questions of sociolinguistic identity and ethnicity in ancient India. That is to say, in the same way that such questions as "What was the language of the Kṣatriyas?" cannot be satisfactorily answered because they are essentially flawed in the assumption of neat, clearly fixed, social and linguistic boundaries, so too it may be that the old riddle of "Who (or what) is Aryan and non-Aryan in Ancient India?" is insoluble, not only because of the insufficiency of the archaeological and historical data available for the relevant period, but equally because it is ultimately not a meaningful question. It is of course perfectly legitimate, and indeed necessary, as a practical and intellectual device to set up such convenient poles of opposition as Aryan and non-Aryan, as of Sanskrit and Prakrit; but we must be careful to avoid falling into the trap of our own devices, by adhering too rigidly to the convenient fiction that such dichtomies actually represent seperable phenomena. In practice, "Aryan" and "non-Aryan" ethnic groups and cultural features, like the

linguistic features of Sanskrit and Prakrit, are so inextricably intertwined from the earliest documented period that any attempt to seperate them is probably ultimately doomed to failure. While we may well be able to identify varying degrees of influence or predominance from one or the other side, it will be inevitably counterproductive to try to deal with them in absolute terms.

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Michael Witzel

14. Ṛgvedic history: poets, chieftains and polities

1. Introduction. The evidence for the earliest historical period of South Asia

My aim here is to complement the earlier essay on philological methods, by laying the groundwork for dealing with historical data contained in the Ṛgveda. I hope thereby to demonstrate the richness of the available information, which has generally been overlooked by both historians and archaeologists, and to provide a primary source for Vedic history along with other recent publications (Witzel 1987, 1989, n.d.).

Although I have already dealt with the nature of Vedic texts, a few key points with regard to the Ṛgveda may be reiterated here by way of an introduction. Above all, it cannot be stressed too strongly that the aim of the Ṛgvedic hymns was not the recording of history. Their authors were little interested in actually relating either contemporary politics or legends from the past; instead they dealt with myth and sacrificial ritual. Indeed, events of their own era were at times deliberately confused with myths about the deeds of gods or demons, especially Indra. Later texts are restricted to details of ritual and their explanation. It is difficult to extract any history from such materials.

In the case of the Ṛgveda, to which this paper is restricted, the task is further complicated by its archaic language, the structure of the text with several historical layers, its geographic and tribal divisions and the great mobility of its authors. Not since the sketchy description of *The Cambridge History of India* (Keith 1921) has the political and social history embedded in this text been at all investigated at length.

In order to lay a firm basis for such an investigation one has to establish, in addition to the features discussed in the previous paper, a few key parametres. In particular, we need the following grids of reference:

A) The structure of the Ṛgveda itself, with its relative order of hymns that are already divided into "books", representing the collections of various clans as well as additional material. (See *Section 2a*)

B) The relationship of the various tribes and clans to the books of the Ṛgveda. (*Section 2b*)

C) The authors of the hymns: deduced from occasional identification of themselves, from the patterns of refrains which act as "family seals", and from the traditional attribution of hymns to certain authors in the Anukramaṇī. (*Section 2c*)

D) Geographical features, especially rivers and mountains. (*Section 2d as well as Appendix A*)

E) This information can then be combined in a grid of places, poets and tribes. (*Section 2e*)

F) Finally, this grid can be combined with a chronological grid established on the strength of a few pedigrees of chiefs and poets available from the hymns. (*Section 2f as well as Appendix B*)

To all this may be added data from linguistic investigations (the various languages and dialects, as well as the evidence of personal names), as well as cultural data from the text on religion, ritual, material culture, local customs, etc. It is difficult enough, of course, to establish the individual grids, let alone combine them. Eventually, however, it should possible to construct a multiaxial grid with variables of time, space and social situation. Once that grid is plotted (and the various points support rather than contradict one another) we may begin the writing of Ṛgvedic history (*Sections 3-5*). To my knowledge this has never been attempted in detail; nor is it the principal aim of this paper: rather, I shall try to lay the essential groundwork for the undertaking of this exercise and relate some initial results in conclusion.

2. Requisites for a Ṛgvedic history

2a. Structure of the Ṛgveda

In order to make some informed judgements about the materials contained in the oldest Vedic text, the Ṛgveda, it is necessary to investigate its structure, the historical process of the accretion of various layers, and the eventual redaction of the text, which gave its final form. It has already been stressed that the Ṛgveda is not a text composed by a single person (in spite of one traditional school of thought), but a collection, whose individual hymns were composed over a long period of time and collected in stages by several, presently unknown, persons.

To my knowledge, it has never been asked who these collectors and arrangers were and what their motives may have been. We have yet to progress beyond general statements about priestly compilers of an oral tradition, transmitted by heart from generation to generation in a limited number of narrow cir-

cles.[1] I shall pose the question later on. The structure of the text has been more extensively studied, already by Bergaigne (1878-83) and Oldenberg in the 19th century.[2] From the latter's *Prolegomena* (Oldenberg 1888), it appears that the Ṛgveda was composed and assembled in the following stages, beginning at "the centre" with books 2-7:

1.1-50	1.51-191	2 - 7	8.1-66	8.67-103 (Vāl. 8.49-59)	9	10	RV Khila

Oldenberg himself asked why the 10 books were arranged in such a way. The answer runs somewhat as follows:

1) The first point to be noticed is that books 2 to 7 (usually referred to as the "family books") are, each, the collections of clans of poets. A general, and very important principle in their arrangement is that the *maṇḍalas* ("circles"), which we tend to call these "books" have been ordered according to the *increasing* number of hymns per book,[3] while the hymns *within* a book follow a *descending* order by an arrangement that relies on the deity, the metre and the number of stanzas of each hymn. Thus, the hymns of a particular "book" (*maṇḍala*) are first arranged in a number of collections, each dealing with a particular deity: Agni comes first, then Indra, then the other gods (depending on the number of hymns per deity). *Within* each collection the hymns are then arranged according to the *decreasing* number of stanzas per hymn. In case the stanzas are of equal number, the hymn which is composed in a metre requiring more syllables comes first. This clever system, perhaps the only effective one in a scriptless society, ensures that each hymn can be found immediately according to its author (the "family"), deity and metre; indeed, the last three items have to be mentioned before recitation even today. Hymns that do not conform to this arrangement by length have been added to the original collection and arrangement of the Ṛgveda at the end of the Vedic period (see below).

2) In addition to these so-called family books there is a special collection of hymns (1.51-191) made by the same collectors and somewhat younger than

[1] For example, Hillebrandt (1987: 534) asks whether the collectors of the Ṛgveda "searched all the land in or around, say Kurukṣetra, or whatever else their homeland might have been" in order to collect all old materials, "in a sort of council", and whether these people then neglected or destroyed [not a particularly apt term for an oral tradition!] everything else that was not collected - a procedure that he finds unlikely.

[2] Cf. also Arnold's *Vedic Metre* (1905) and Wüst (1928), from the early years of the 20th century.

[3] First noted by Bergaigne; see also Oldenberg 1888: 254.

the former. It is a small collection of 9 poets' groups, with the same internal arrangement as books 2-7.

3) With regard to the order of book 8 (Oldenberg 1888: 254-264) it is not the metre but the *authors* that are more important. There are two groups, the Kāṇva in hymns 1-66 and the Āṅgirasa in the rest. The various clans form a community not much different from those in books 2-7. Many common expressions are found throughout book 8, just as similar ones appear in books 2-7. However, some of the poets of book 8 also appear in later books; their hymns are collected here because they are composed in the same form as used by the bulk of the poets in book 8, the Kāṇvas: they all prefer the strophic hymn (*Pragāthā* or *Tṛca*). Although exceptions exist, the trend is clear enough.

4) In hymns 1.1-50, too, the gods are ordered in the usual sequence, but other principles order each group thus established.

5) The hymns used in the Soma ritual have been collected together in one book (9), because of the prominence of the ritual and especially because of the nature of the Soma hymns: the book was useless for the reciters of the Ṛgvedic stanzas (*hotar*) as it was collected for the use of the singers of the *sāmans*. Oldenberg showed that book 9 did not exist separately before the collection of the family books 2-7 as a unit. It has the same authors as 2-7 (and even 8 and 10); it was only brought together - see RV 9.67.31: *ṛṣibhiḥ sambhṛto rasaḥ* - after the collation of books 2-7.

6) Book 10 is the great appendix to the Ṛgveda, a collection of hymns of various (traditional) authors, arranged in a fashion similar to the older books, except that after 10.95 follows the series of single hymns. Language, content and arrangement all show that it is late: the hymns were composed already in the knowledge of other books, even of their order. Note, for example, that group 10.20-26 starts with *Agnim īḷe*, in imitation of the very first verse of the Ṛgveda. However, book 10 is a well arranged unit of *older* additions, unlike incidental additions within the other books which are clearly recognisable as they violate certain principles of arrangement.

It must be noted that the arrangement in these books does not *always* mean that a particular hymn is older or younger than some others. There are old hymns even in book 10 (the appendix). Also, as Hillebrandt (1987: 534) has observed with good reason, the "younger form" of a hymn does not always signify its "younger age"; some may have been composed early but entered the corpus at a comparatively late date, being transmitted with a lesser degree of care, typical for the Atharvaveda, SV and Yajurveda *mantras*. All we can say with confidence is that book 10, as such, is late but judgement must be exercised for every individual hymn. Some in book 8, sometimes even in books 1 and 10, can be as early as those in the "family books".

On the other hand, the method of arrangement (especially the decreasing number of stanzas per hymn in each group of hymns addressed to a particular

deity) can easily be used to identify possible later additions. Several interesting hymns, e.g. Ṛgveda 3.53, belong in this category and have to be regarded as late summaries of historical facts by the poets' and priests' clan of the Viśvāmitras, Bhāradvājas and Vasiṣṭhas. For other examples the reader is referred to Oldenberg (1888) and Arnold (1905), who provide exhaustive analyses, although a list culled from Oldenberg may be provided here of hymns which clearly violate the order of arrangement and thus stand out as later additions[4] or, at least, parts of which have been added after the collection and arrangement of the Ṛgveda:[5]

1.23.6, 1.91.19-23, 1.162?, 1.163?, 1.164?, 1.191
2.23.6-8, 2.42, 2.43
3.28, 3.29, 3.52, 3.53 (note that 3.23 and 3.52 belong together)
4.48?, 4.57.4-8, 4.58
5.27, 5.40.5-9, 5.51.11-15, 5.61, 5.78.5-9
6.47, 6.52.13-15, 6.74, 6.75
7.17, 7.33, 7.55, 7.59.7-8, 7.59.9-11, 7.59.12(Not divided in Padāpatha!), 7.103
8.5, 8.66?, 8.87?, 8.89?, 8.91?, 8.93?, 8.96-101?, 8.101.13-15[6]
9.5, 9.61.22-30, 9.97.55-58, 9.101.16, 9.106.13-14?, 9.107.16, 9.109.22, 9.112-114.
10.87.22-25?, 10.95: 4 stanzas longer, 10.97: 11 stanzas longer, 10.103.12-13, 10.109: too few stanzas (7 instead of 11 (18) in the AV); 10.119: 4 stanzas longer, 10.121.10 (not divided in Padāpatha), 10.124: 1 stanzas longer, 10.128: 1 stanzas longer, 10.142.7-8, 10.162.6, 10.163.6, 10.173: 2 stanzas longer, 10.174: 1 stanzas longer, 10.187: 2 stanzas longer, 10.191: 1 stanzas longer.

In addition to those formal characteristics, other parametres have to be used as well. Arnold (1905) has contributed to this in his *Vedic Metre*. However, the outcome is once again meagre: he basically agrees with others that books 1 and 10 are late, and as far as his own theories go, one may agree with S. Migron (1976: 180) that they "have not been independently corroborated yet; the table in Wüst's *Stilgeschichte* ... [Wüst 1928: 164-165] shows the wide divergence of scholars on this subject, although Maṇḍala X is agreed by all, and Maṇḍala I by some, of them to be generally later than the rest". As far as metre is concerned, the new edition of the Ṛgveda by B. van Nooten and G. Holland (forthcoming in the Harvard Oriental Series) will serve as a ready aid to discerning the features of

[4] Especially, of course, the nymns which are not divided in Śākalya's Padapāṭha.

[5] Hymns which violate the order - usually by being too long - but can be subdivided into segments of three (*tṛca*, or some other subdivision), have been left out here as they have been artificially compounded into one hymn each; see Oldenberg 1888, or Geldner's subdivisions in his translation (Geldner 1951).

[6] For the order of the various series in book 8, there is hardly a principle. Bergaigne (1878-83,2: 76 sqq) has one, to which Oldenberg (1888) objects.

Ṛgvedic metre, which is generally much more regular than supposed, and thus a new start can be made.

Wüst (1928) has added some other facts to his scheme, though many of his criteria stem from the particular style of Ṛgvedic poetry. His (and Hoffmann's) statistics have already been treated elsewhere (Witzel 1989a); it is time, here, to take a few steps towards a new, comprehensive evaluation:

To begin with, it is surprising that sholars have persisted with formal characterisitcs which cannot be independently evaluated - unless we already know the distribution and mutual influence of Ṛgvedic dialects and poetic diction per book, clan and poet. This, however, remains to be done.[7]

While family adherence, metric observations and the relative stages of development of the Ṛgvedic language provide invaluable data for the evaluation of the age of the various books and hymns, there are additional data that have not been used, at least, not consistently, even though they are rather obvious. As summed up in the introduction, above, these include several variables to be treated independently at first, and combined subsequently, above all: 1) various "royal" (noble) lines of descent, and similar data on the poets, that are mentioned in the text itself. Once these have been established, the mutual relationship between these two groups, their adherence to or connections with the various Ṛgvedic tribes, and, if possible, the relation of entire tribes to the various books and their history can be attempted. 2) Geographical data for each hymn and book and 3) their relationship to the poets, kings and tribes. The resultant grids - geographical and historical - may shift from to poet to poet (who are themselves on the move). We have also to pay constant attention to reminiscences in the family books, in hymns summarising family history (such as 3.53, 5.33, 6.53, 7.53 etc.). Ideally, all this data could be combined with independent information on the linguistic features of various hymns, and on their arrangement within the books on principles already stated.

As already described in the introduction, the eventual result should be a multi-axial grid, which would have certainly appealed to H. Grassmann, the inventor of multidimensional geometry as well as the author of the Ṛgvedic dictionary. Such a task, however, is beyond the scope of the present paper; what I shall attempt here is the presentation of a "flat" scheme with individual variables treated separately, though with comments on linkages between them. With these comments I shall now proceed to the presentation of the data itself.

[7] S. Insler (personal communication) states that he has identified some 700 items of dialect characteristics in the Ṛgveda. I defer to him.

2b. Books of the Ṛgveda and Ṛgvedic tribes

In the extant Ṛgveda we meet about 30 clans and tribes. As this is not the place for determining the precise nature of these social groups - extended families, clans, small tribes or larger confederations - I shall merely list them: Aja, Alina, Anu, Āyu, Bhajeratha, Bhalāna, Bharata, Bhṛgu, Cedi, Dhṛbhīka, Druhyu, Gandhāri, Guṅgu, Guṅgū, Ikṣvāku, Krivi, Kīkaṭa, Kṛtvan, Kuru, Kuruṅga, Kuruśravaṇa, Mahīna, Matsya, Maujavant, Nahuṣa, Naicaśākha, Paktha, Pañca jana/ Pañca kṛṣṭi etc, Pārāvata, Parśu, Pārthava, Pṛśnigu, Pṛthu, Pūru, Ruśama, Sārasvata, Satvant, Śigru, Śimyu, Śiva, Śṛñjaya, Śvitna, Tṛtsu, Turvaśa, Uśīnara, Vaikarṇa, Vaśa, Vibindhu, Viṣānin, Vṛcīvant, Yadu (Yakṣu).

Among these, the major tribes of the "Five Peoples" (*pañca jana, kṛṣṭi* - underlined above) seem to be more closely connected to some of the "family books" (2-7) than others.[8] Their designation means, literally, "five furrows", which is strange for a pastoral people; what is intended seems to be the area in which these tribes dwell between the "five furrows", viz. the division of the earth into five segments: the four quarters (N, E, S, W) with the fifth group - the *Pūrus* [9]- in the ceremonial centre, thus:

Panjab		Iran[10]	
Yadu-Turvaśa	NW		NE
Pūru	W	Centre	E
Anu-Druhyu	SW		SE

The character of these "Five peoples" or polities has remained unclear, although they may represent a religious, or rather caremonial, grouping with a common ritual. The *Inguaeones* and *Istuaeones*, reported by Tacitus among the Germanic tribes may provide a useful parallel: they claimed *Mannus* as their common ancestor, just as the Indo-Aryans designate *Manu* as such and regard all other humans as *a-manuṣa*. What is clear is that four of the tribes are regularly paired, Yadu with Turvaśa and Anu with Druhyu, a practice common also later on (e.g. Kuru-Pañcāla, Kosala-Videha etc.; cf. Kaurava-Pāṇḍava from the Mahābhārata). Further, these polities are not stable, especially the Pūru, to whom (and to their dominant successors, the Bharata) the Ṛgveda really belongs.

[8] The term appears more frequently in books 6 (4 times), 7 (3 times), 8 (twice), 9 (3 times), 1 (4 times) and 10 (6 times) than in books 3 (twice), 5 (twice) and 4 (once).

[9] The scheme reminds one of Iran with the 7 *karevars*. The actual distribution is open to question, but cannot be treated here; for a brief discussion see Macdonell and Keith (1912). The *Pūrus* seem to have lived in the Panjab at the time of Alexander's invasion, whose principal battle was fought against king *Poros*.

[10] See Witzel (forthcoming), *airyanam vaeja*.

2c. Authors

An investigation into the various poets' families, according to the traditional list, the Ṛgveda Anukramaṇī, results in the following genealogies:

BOOK 2: GṚTSAMĀDA

Āṅgirasa Śunahotra -> Gṛtsamāda Āṅgirasa Śaunahotra[11]
Bhārgava Śunaka -> Gṛtsamāda Bhārgava Śaunaka[12]
|
Somahūti = descendant of Gṛtsamāda[13]

Also: Kurma Gārtsamāda / Gṛtsamāda

BOOK 3: VIŚVĀMITRA:

*Iṣīratha-> Kuśika Aiṣirathi = Kuṣika-> Gāthin-> Viśvāmitra-> Kata-> Utkīla

Descendant: Ṛṣabha V.[14]

BOOK4 : VĀMADEVA:

-> Gotama -> Vāmadeva
|
Aṅgiras -> Rahūgaṇa Āṅgirasa -> Gotama Rāhūguṇa -> Nodhas Gotama-> Ekadyu Naudhasa[15]

BOOK 5: ATRI / ĀTREYA

*Bhūma/i? -> Atri Bhauma -> Ātreya/ Ātreyi

BOOK 6: BHĀRADVĀJA

Bṛhaspati -> Śamyu
(Aṅgiras?) -> Bharadvāja
(6.35.5)

[11] Pre-adoption poems: 2.18, 2.41.
[12] Post-adoption poems: 2.19?, 2.39?, 2.41? though Gṛtsamāda...
[13] Calls himself (in 2.4.9) among the Gṛtsamādas.
[14] Prajāpati V??/ P. Vācya?
[15] Furthermore: see book 9: Gotama --> Nodhas Gautama --> Ekadyu Naudhasa.
Further: Purukutsa --> Chieftain and poet Trasadasyu Paurukutsa.
Suhotra --> Purumīḍha + Ajamīḍha.

BOOK 7: VASIṢṬHA[16]

(Note that he is an immigrant from across the Sindhu: cf. Books 9, 10):

Vasiṣṭha	-> Vasukra Vāsiṣṭha	-> Vāsukra
Vasiṣṭha	-> Śakti Vāsiṣṭha	-> Gaurivīti Śāktya[17]

BOOK 8: KAṆVA

(Pras-?) Kaṇva / Kāṇva
|
Kāṇva Ghora
|
Pragātha Ghaura
|
Pragātha Kāṇva
| |
Bharga Pragātha Kāli Pragātha Haryata

BOOK 9: The soma book

Aṅgiras -> Rahūgaṇa Āṅgirasa -> Gotama Rāhūgaṇa -> Nodhas Gotama -> Naudhasa

Marīci	-> Kaśyapa Mārīci	-> Kāśyapa
Bhṛgu	-> Kavi Bhārgava	->Uśanas Kāvya
Vasiṣṭha	-> Vasukra Vāsiṣṭha	-> Vāsukra
Manu Sāṃvaraṇa	-> Nahuṣa Mānava	->Yayāti Nāhuṣa

BOOK 10:

Vasiṣṭha	-> Śakti Vāsiṣṭha	-> Gaurivīti Śāktya[18]

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[16] Note: whole book by one person!! (should be checked by linguistic analysis). Cf also 10.66.14 composed in his spirit. If this book is that of the victorious Bharatas, then consult the special praise of the Sarasvatī: 7.95-96.
Tṛtsu = Vasiṣṭhas: 7.83.8 (reference to 10 kings' battle): "... waehrend die in weiss gehenden Tṛtsus ... Gottesdienst hielten." Also 7.33.1: "Die weissgehenden mit der Haarschnecke auf der rechten Seite ... Meinen Vasiṣṭhas kann ich nicht aus der Ferne beistehen". Hate of Viśvāmitra, protests against sorcery: 7.21.4, 7.34.8, 7.81.1a, 7.61.5, 7.104. Principal chieftain is Sudās who wins the battle of the 10 kings (7.18); Vasiṣṭha is his *purohita*: 7.83.4, ŚŚS 16.11.14; is the typical *purohita* in 10.150.5.

[17] See books 5, 7 and 10.

[18] See books 5, 7 and 10

Although the Anukramaṇī is often (but not always) based on information in the texts themselves, it represents a genuine tradition as far as the relations are concerned, but is quite unreliable where the author of a particular hymn was not known to the collectors.

It can be seen that most of the poets are counted among the Āṅgiras; only the origin of the Kuśika - Gāthin - Viśvāmitra (Book 3) and of the Atri Bhauma (Book 5) remains unclear.[19]

Interesting, too, is the adoption scheme that is seen in several cases. This can be both a spiritual and a real adoption: an example of a spiritual adoption is the case of Viśvāmitra who learnt the lore of the Jamadagnis (Bhārgava) in 3.62.16-18; the political reason might be his fight with Vasiṣṭha, and Āṅgiras under Sudās (see below). Śunahotra is also adopted by the Bhṛgus > Bh. Śaunaka; the Bhṛgu clan is of great interest as they derive "officially" from Varuṇa (a descent claimed occasionally by kings such as Trasadasyu):[20] e.g. 9.65 Bhṛgu Vāruṇi < Varuṇa. The teacher of Viśvāmitra, Jamadagni also belongs here according to the Anukramaṇī: 8.101., 9.62, 10.110: Jamadagni Bhārgava. As does the famous Uśanas (Bhṛgu --> Kavi Bhārgava --> Uśanas Kāvya) as well as Vena, a "first king": 10.123: Vena Bhārgava, a descendant of Bhṛgu.

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Āṅgirasa                      Bhṛgu
   |                          /   \                    Iṣīratha
   |                         /     \                       |
Bharadvāja               Śunahotra  Jamadagni               |
   |  \                      |              \          Kuśika
   |   Śunahotra          Śaunaka         Teacher of:      |
   |                      -----------            \     Gāthin
   |                                              \        |
   |                                               \       |
   |                      Gṛtsamāda                 Viśvāmitra
   |
Bhāradvāja                Gārtsamāda                Vaiśvāmitra
 (Book 6)                  (Book 2)                  (Book 3)
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This adoption scheme is even more interesting as Śunahotra originally was an Āṅgirasa.[21] (Probably, as he was formally allied with the Yadu-Turvaśa, see below, because of Sudās' change of *purohita* to Vasiṣṭha).

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[19] But check Kuśika in the general Pravara lists. Note also that the Atris were not regarded highly later on.

[20] Is this why Vasiṣṭha also has to claim this?

[21] Theoretically, since Gārtsamāda Śaunaka is made a Bhārgava, he could be later than Book 6.

2d. Geographical Links

It may be well to remind ourselves at this point that the world of the Ṛgveda contains the Panjab and its surroundings: eastern Afghanistan, the valley of the Kabul (*Kubhā*, Gr. *Kophēn*), Kurram (*Krumu*), Gomal (*Gomatī*), Swat (*Suvastu*) and - probably - Herat (*Sarayu*, Avestan *Haraiiou*) rivers; also the valleys of the rivers of Sistān: the Sarasvatī (*Harax^{v}aitī*/ *Harahuvatī*) and the Helmand (**Setumant*). In the east, the Gaṅgā and the Yamunā are already mentioned; the southern limit may be indicated by the *Bhalāna* tribe, which may represent the *Bolān* area in modern Baluchistan.

The detailed information presented in *Appendix A* provides a clear indication of which books of the Ṛgveda are aligned with which geographical areas of the Subcontinent and, beyond, in Afghanistan. It may be summed up as follows:

Book 2 is clearly concerned with the west and with Afghanistan.

Book 3 concentrates on the Panjab and the Kurukṣetra area (as we will see later, because it represents the time of king Sudās).

Book 4, again, concentrates on the west, even on the river *Sarayu* (which may, perhaps, be identified with the great *Haroiiu* of the Herat area), but also knows of the Panjab.

Book 5, similarly, knows of the west (*Krumu, Sarayu*) and of the Panjab, but also includes the east and even knows, in a hymn not suspected as an addition, of the *Yamunā*.[22]

Book 6, again, knows of the west (including the *Yavyāvatī*[23]) but once mentions even the *Gaṅgā* in an unsuspicious hymn (though in a *tṛca* section).

Book 7 mainly mentions the *Sarasvatī*, and in a late hymn retraces the entire process of immigration across the Panjab, as well as the battles of the Bharatas and their king Sudās, along with the poet Vasiṣṭha, the author of many hymns in this book.

Book 8 concentrates on the whole of the west: cf. camels, *mathra* horses, wool, sheep.[24] It frequently mentions the *Sindhu*, but also the *Seven Streams*, mountains and snow. At the same time some personal names appear foreign (even Muṇḍa, see below).

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[22] Note that all these geographical notes belonging to diverse hymns are attributed to one and the same poet, *Syāvāśva*, which is indicative of the poet's travels - noteworthy also is the name *Gairikṣita* "living in the mountains", later a name for the Yāskas.

[23] Which may be the *Zhob* River in N. Baluchistan? See Geldner *ad loc* and Hillebrandt 1913: 49 sqq.

[24] These are all western traits: the best horses traditionally come from Afghanistan (*Kamboja*) and from the Indus area. Even the mention of dogs may point to Iranian areas where they are of high repute, rather than to Indian lands where they have been treated only as scavengers.

Book 9, which has authors from all the preceding family books is much more difficult to locate. The same applies to *Book 10* and to the various collections assembled in *Book 1*.

Most important for an overview of Vedic geographical knowledge is the famous *nadīstuti* of the late book 10 (10.75), in which the major rivers of the Indus system are enumerated.[25] Their traditional number is three times seven. The enumeration starts, with the exception of the largest stream (*Sindhu*) in the East, treating all rivers as if they were eastern tributaries of the *Sindhu*. Many of the rivers can be identified: *Sindhu* = Indus; *Gaṅgā* = Ganges; *Yamunā* = Jamna; *Sarasvatī* = Sarsuti; Ghaggar-Hakra; *Śutudrī* = Śatadru, Satlej, *Paruṣṇī* = Irāvatī, Ravi; *Marudvṛdhā* with *Asiknī* = Chenab; *Vitastā* = Bihet, Jhelum; *Ārjikīya* with *Suṣomā* = Sohan (?). A second enumeration gives the western tributaries, starting apparently in the extreme north and moving southwards: *Tṛṣṭamā*, *Susartu*, *Rasā* = apparently a small tributary high in the Himalayas; *Śvetyā*, *Kubhā* = Kabul; *Gomatī* = Gomal; *Mehatnu*, *Krumu* = Kurram. It is important to note that in this relatively late hymn the Ṛgvedic territory covers only the area between the Gaṅgā and SE Afghanistan (Gomal and Kurram Rivers), and between the Himalayas and the northern border of the modern province of Sind. Most of Afghanistan, including Bactria and Herat (Arachosia), is already out of sight.

2e. Summary of poets' clans and their location

Book 2:	Gṛtsamāda clan	W/NW, Panjab
Book 3:	Viśvāmitra clan	Panjab, Sarasvatī (the later *Kurukṣetra*)
Book 4:	Vāmadeva clan	W/NW, Panjab
Book 5:	Atri clan	W/NW, Panjab, ---> Yamunā
Book 6:	Bharadvāja clan	W/NW, Panjab, Sarasvatī --> Gaṅgā
Book 7:	Vasiṣṭha clan	Sarasvatī, (Sindhu/Panjab --> Yamunā)
Book 8:	Kaṇva, Āṅgirasa clans	W/NW, Sindhu/Suvāstu, Panjab

2f. The family books and the "kings" and tribes mentioned

If we now compare this geographical grid and its overlap with the individual poets (as far as they can be discerned from the Anukramaṇī and the arrangement of the Ṛgveda itself) with the mentions of tribes and rulers, the grid presented in *Appendix B* can be set up. On the surface of it, this establishes the connection of tribes and kings with certain areas, although we must separate the late developments in additional hymns (listed in section *2a*): these are marked by < > brackets. However, once the lines of royal descent are supplied, certain sections

[25] The author is supposed to be Sindhukṣit Praiyamedha < cf. Priy. Āṅg. 8.2, 8.68-69, 8.87 > i.e. the descendant of Priyamedha "who lives on the Indus". Like many names, the poet's name may be apocryphal.

of the Ṛgveda will be marked as later by some generations than the rest. It is immediately apparent that few "dynasties" emerge, and many individual rulers lacking pedigree are mentioned (especially in book 8, which also lists numerous tribes that were unknown to other books). As a first step it would be best to draw up a grid of royal succession for the two best known groups:

BHARATA		PŪRU
(Bhoja/Sumitra?)		(Ikṣvāku?)
Pratṛd		
Atithigva		*durgaha??*
(Vadhryaśva)		-
(Devavat?)		**Girikṣit**
I		I
Divodāsa		**Purukutsa**
(Kaśoju Paijavana)		I
I		I
Sudās ---------	**1.63.7, 7.19.3** ---------	**Trasadasyu**
I	**(possible synchronism)**	(*ardhadeva*)
I		I
I		Tṛkṣi
Saudāsa (sons)		-
-		-
-		**Mitrātithi**
-		
(Devavat? 7.18.22)		**Kuruśravaṇa Trāsadasyava**
I		I
I		**Upamaśravas**
Devaśravas		
I		
Devavāta		
I		
Śṛñjaya Daivavāta? 6.27.7, 4.15.5 (cf. note 72)		

Finally, we may take a look at each book again, having separated late hymns, or those which clearly look back to tribal or family history. This distilled information is summarised in the following table of Ṛgvedic family books, tribal chiefs and geographical areas:

Book	Poet's clans	Areas	Last chiefs mentioned
II	Gṛtsamāda	NW, Panjab	Divodāsa
III	Viśvāmitra	Panjab, Sarasvatī	Sudās
IV	Vāmadeva	NW, Panjab	Trasadasyu, Divodāsa
V	Atri	NW --> Panjab --> Yamunā	Tṛkṣi
VI	Bharadvāja	NW, Panjab, Sarasvatī --> Gaṅgā	Tṛkṣi
VII	Vasiṣṭha	Panjab, Sarasvatī, Yamunā	Sudās
VIII	Kaṇva		
	& Āṅgirasa	NW, Panjab	Tṛkṣi, etc.

This throws some light on the early history of Vedic composition. It is interesting to note that four of the "Five Peoples", the Yadu-Turvaśa and Anu-Druhyu, do not figure much in the Ṛgveda. It is the newcomers, the Pūru and their subtribe the Bharata, who play a major role in most books. Only the Kaṇva portion of Book 8 (8.1-67) mentions the older tribes more frequently; it also deviates from the other family books in its (strophic) metre. It may thus be deduced that most of Ṛgveda was composed as the Pūru and the Bharata were moving into the Panjab.[26] Portions composed before the Pūru assumed a central role in the Panjab (in about three generations) were subsequently recast in their style. Books 3 and 7, however, deal already with the ascendency of the Bharata tribe at the time of Sudās; book 3 does not yet mention his victory in the *daśarājña* battle on the *Paruṣṇī* except for an additional late hymn, while book 7 has this event as its main feature. With these remarks, some aspects of Ṛgvedic history may finally be tackled.

3. Ṛgvedic history - accounts of the Indo-Aryan immigration into the Panjab

Taking a look at the data relating to the immigration of Indo-Aryans into South Asia, one is struck by the number of vague reminiscences of foreign localities and tribes in the Ṛgveda, in spite repeated assertions to the contrary in the secondary literature. Then, there is the following direct statement contained in (the admittedly much later) BŚS, 18.44: 397.9 sqq which has once again been overlooked, not having been translated yet: "Ayu went eastwards. His (people) are the Kuru-Pañcāla and the Kāśī-Videha. This is the Āyava (migration). (His other

[26] This may also, incidentally, explain the general absence of true Eastern forms: e.g. *putre* instead of *putro*/ *putraḥ* in the gen. sing., or gen. in *-as* as in *sūre duhitā*.

people) stayed at home in the West. His people are the Gāndhārī, Parśu and Araṭṭa. This is the Amāvasava (group)" (Witzel 1989a: 235).[27]

Indirect references to the immigration of Indo-Aryan speakers include reminiscences of Iran, Afghanistan and Central Asia. Thus, the mythical Indo-Iranian river **Rasā* corresponds to the Vedic *Rasā* (RV, JB), the East Iranian *Ranhā*, and the North Iranian *Rahā*, which is preserved in Greek as *Rhā*, where it designates the River Volga. This is a good example of the "migration" of river names, a topic discussed in the previous paper. In the same category might fall the rather vague identification of Ṛgvedic *rip-* with the Rhipaean mountains, the modern Urals (Bongard-Levin 1980).

A cosmological myth locates the primordial cows in a cave (*Vala*, cf. Iranian *Vara*) on an island in the *Rasā*, where they were guarded by a group of demons referred to as *Paṇis*, which reminds one of the North Iranian **Parna* (found in Greek as *Parnoi*). Another North Iranian tribe occurs in Skt as *Dasa*; Iranian (Latin) *Dahae*, (Greek) *Daai*. A related form is *dasyu*, Iranian *dahyu*, *dainhu* "foreign country, enemy" and Vedic *dāsa* "slave", Iranian *dāha*(*ka*), Mycaenean Greek *doero-*, Greek *doulos* "slave". Clearly, foreign territory was regarded as that of the enemy and captured enemies were enslaved.

More connections are indicated, for example, by Vedic *Sindhu*, with a possible Greek cognate *Sindoi*, designating a people along the Koban River in the Caucasus. Cf. also Iranian *Hindu*, as the name of the border river between Iran and India[28] which, of course came to designate the entire Subcontinent, and its dominant religion. Further hydronomic evidence, already referred to in the previous paper, also points to earlier Indo-Aryan settlements in Afghanistan: *Sarasvatī, Sarayu, Gomatī*, etc. The names, considered together, retain a vague memory of the route followed, and of enemies encountered,[29] by the migrating Indo-Aryan speaking tribes.

Several names, especially in books 6 and 8, show connections with Iran as they may be of (proto-)Iranian origin,[30] e.g. *Arśasāna* "winning of men?" (2.20.7 - cf *an-arśani* "not having men?" 8.32.2). The *Parśu* may be equated with the historical Pashtuns living in the Northwest Frontier and in Afghanistan.[31] The case of *Paktha* is more complicated, as the name occurs with *Adhrigu* and *Babhru* in 8.22.10: K. Hoffmann (1975) takes it to mean "the fifth", although in other cases it looks like a name which could presage the modern Pakhtuns.

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[27] *Prāṅ Ayuḥ pravavrāja. tasyaite Kuru-Pañcālāḥ Kāśī-Videhā ity. etad Āyavam. pratyan amāvasus tasyaite Gāndhārayas Parśavo 'raṭṭā ity. etad Āmāvasyam.*

[28] *Pace* Mayrhofer, Thieme 1971 on *Sindhu*.

[29] Who, in the intervening years have been elevated to semi-demonic status.

[30] See Hillebrandt (1913), Wüst (1928), Hoffmann (1975: 13-15) and Hopkins (1897: 23 sqq).

[31] However, the Pārthava Abhyāvartin Cāyamāna who defeated the Vāraśikha of the Vṛcīvats on the *Hariyūpīyā* in 6.27.5 has a proper Vedic name. Although the distance between Iranian and early Vedic may not be great, observe *early* E. Iranian *Bāxdi* with *Balhika* in the AV: Witzel 1980.

Dṛbhīka (2.14.3) may be compared with the Iranian tribe of *Derbikes*, and the incoming *Uśij* (2.21.5) represent an ancient Iranian clan as well as an Indian one.

An Iranian connection is also clear when camels appear (8.5.37-39) together with the Iranian name *Kaśu* "small" (Hoffmann 1975), or with the suspicious name *Tirindra*[32] and the *Parśu* (8.6.46). The combination of camels (8.46.21, 31), *mathra* horses (8.46.23) and wool, sheep and dogs (8.56.3) is also suggestive: the Borderlands (including Gandhāra) have been famous for wool and sheep, while dogs are treated well in Zoroastrian Iran but not in South Asia.

In addition, one may stress that both the Yadu-Turvaśa and the Bharata are aware that they have "come from afar": "Indra...brought Yadu and Turvaśa from far away" (6.45.1); "Indra...carry Yadu and Turvaśa across (the waters)" (6.20.12=1.174.9). They have "crossed many rivers",[33] and "have gone through narrow passages",[34] which once again indicates the mountainous terrain of Afghanistan. That they had to fight their way through some of these passages is suggested by numerous references to the storming of the mountain fortresses (*pur*) of Śambara (e.g. 2.19.6); echoed in later history by the campaigns of Alexander in Nuristan and Swat Kohistan.[35] The length of the campaign may be indicated by the statement that Śambara's forts were only stormed in the 40th year (2.12.11), although note the symbolic value of 40 (Witzel 1984). It should be pointed out, also, that several tribes on the Indo-Iranian Borderlands undergo this ordeal twice a year: they descend to the plains of the Panjab in the winter, only to return to the highlands of Afghanistan in the spring, in each case passing through hostile territory. A similar sentiment is expressed in 6.24.8: "mountains and flat lands are (both) accessible to Indra", i.e. passable only with divine help.

As we shall explain below, the actual movement of Indo-Iranian speakers must have involved a succession of waves. The remnants of one early wave are the so-called Kāfir (Nūristānī) people in northeast Afghanistan and the Chitral region (Robertson 1896; Edelberg and Jones 1979; Morgenstierne 1975; etc.) They retain forms of Indo-Aryan which had died out already in Vedic and early

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[32] Which was supposed to be Iranian, although on the basis of the later name of *Tīra* - see Barthalomae 1961: 65.

[33] Cf. 2.12.13 (and 4.19.6): Turvīti and Vayya cross strems which Indra had stopped for them. 2.15.6: the Sindhu is crossed. 2.21.5: Uśij (cf Iranian Uśij-; Auśija in other books) crosses the waters. 2.20.7: land and water is created for Manu (i.e. the Indo-Aryans). 4.30.17: Yadu and Turvaśa cross the rivers.

[34] As in the late hymn 6.47.20-21: "we have come into a pathless country; the broad earth has become narrow ... we search for a way"; in the course of this move the Dāsa Śambara and Varcin (cf. Vṛcī-vat, Mūja-vat) were killed at Udavraja (cf. Daśa-vraja, Mūja-vat). All this, apparently, is said of the Indo-Aryan Sṛñjayas who were with the poet Bharadvāja at the time.

[35] Cf 2.13.8: "Indra drove Nārmara with his treasures, in order to kill Pṛkṣa and Dāsaveśa, to the unmanned entry of Ūrjayantī" (which once again looks like a narrow mountain pass); also 4.30.14: "You (Indra) brought down from the high mountain the Dāsa Śambara, son of Kulitara".

Iranian, thus by 1000 B.C. at the latest: e.g. Kāfirī *dac>* :: Vedic *daśa*, Iranian *dasa* "ten". The speakers of Ṛgvedic and post-Ṛgvedic Skt, of Median and Persian, and of the various Avestan dialects are representatives of some of the *later* waves that entered the Indo-Iranian area. Their mutual relationship remains to be investigated in detail.[36] Grammatical and lexical features, for example, allow the placing of the speakers of Proto-Persian with those of the Vedic Indians at some distant point in the past,[37] while those of Old Avestan agree more with the Ṛgvedic, and those of Young Avestan with the later Vedic texts. This indicates a settlement at close range, as well as extensive trade relations between the various tribes, which were disturbed, nay severed, by their migrations over various routes into Iran, Afghanistan and the Panjab. Secondary relations could have developed later in time, for example linguistic agreements between the West Iranian languages (Median and Persian) as opposed to East Iranian (various Bactrian, Arachosian and Kambojan[38] dialects).

It is important to stress the existence of several waves, as well as the process of a gradual trickling in of various clans, occasional larger groups organised into (temporary) polities, and even aggregations of tribes such as the *Pūrus*. The idea of a cataclismic invasion has, in fact, been given up long ago by Vedic scholars - the view that "Aryan hordes" sacked the cities of the Harappans (Wheeler 1946 etc.), in particular, has found few takers lately. What is not yet clear is how the process of immigration actually took place.[39] As suggested in my previous paper (Chapter 4), even a limited number of Indo-Aryan speakers could have triggered a process of acculturation, especially if they enjoyed a dominant social position due to their superior (military) technology. By the time of their arrival the Indus Civilisation had already disintegrated and this would have facilitated their movement.

In view of these facts, it would not be surprising if physical anthropologists failed to unearth any "Aryan" skeletons - not only would the newcomers have been few in number but they would have already had mixed physiological characteristics due to their interaction with a variety of groups along their route of migration. However, lack of their physical presence is no argument against

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[36] For some preliminary remarks see Witzel 1989a.

[37] Note also that the Persians (*Parsa*) have the same name as the *Parśu* (BŚS), the ancestors of the Pakhtuns. See for discussion below.

[38] See Patañjali (150 BC) on *śavati* (Witzel 1980).

[39] Although the idea of two waves, one Inner and one Outer, has been popular since Hoernle's (1880) original formulation, it can easily be challenged. Outer band features can have their origin in the Middle Ages, even if preserving some archaic features. Likewise, the central (later Hindustani/Hindi/Urdu) area could have developed innovative, unifying features that sim-ply did not spread to the periphery. It would help, of course, to be able to date and situate the texts in their geographical milieu, something for which a beginning has now been made (Witzel 1989a).

the existence of some migration in the past.[40] I believe that some information does exists on this subject even in the Ṛgveda, as outlined above, even if only as the occasional "snapshot" of a long time period between the arrival of the Indo-Aryans and the emergence of Iron Age civilisation after c. 1200 B.C. (represented by such texts as the Atharvaveda, Sāmaveda and Yajurveda *mantras* of the so-called Mantra period, comprising the second oldest layer of the Vedic corpus). In view of recent attempts (Biswas 1990, Shaffer 1984) to deny that any movement of Indo-European into South Asia has occurred, such a summary of the evidence is particularly necessary.

4. Ṛgvedic history: the Indo-Aryans in the Panjab

Once they arrived on the plains of the Panjab, the Indo-Aryans had further battles to fight. The name of one chieftain, *dasyave vṛka* "wolf for the Dasyus" (8.49.9, 55.1, 56.1-2) is indicative of their principal enemy. Further (2.11.18): "for the *Ārya* you opened the light; the Dasyu was left behind, on the left (which can also mean "to the North", and indicates once again that Vedic poets faced the east - their presumed goal - in contemplating the world.) Still in book 2: "Indra destroyed the Dāsic forts which had Blacks in their laps; he created the land and waters for Manu" (2.20.7); "Indra dispersed the 100,000 men of Varcin" (2.14.6)

Further references are found in another of the early family books: "You (Indra) overcame for Ṛjiśvan, the son of Vidathin, the mighty Pipru Mṛgaya. You put down the 50,000 Blacks. You wore thin the forts like a garment" (4.16.13); "I (Indra) at once destroyed the 99 forts of Śambara ... when I helped Divodāsa Atithigva" (4.26.3); "Indra destroyed 100 stone forts for the offering Divodāsa" (4.30.20); "Indra put to sleep with his sorcery 30,000 Dāsa for Dabhīti" (4.30.31). Then, in book 6 we find that the Dāsa Namuci (a demon) was killed for Namī Sāpya (6.20.6); that the autumnal forts of the Dāsas were destroyed by the Pūrus under Purukutsa (6.20.10); or that the forts of Śambara were destroyed for Divodāsa who was with the poet Bharadvāja (6.31.4). Further references are also made to the initial entry into the Subcontinent, which have already been cited in the previous section.

Book 7, the latest of the family books, also contains some explicit descriptions of campaigns, in particular 7.5.3: "Out of fear of you, the black tribes moved away, leaving their possessions behind, without a fight, when you Agni Vaiśvānara, shone, flaming for Pūru and breaking their forts". See also 7.5.6: "You, Agni, drove out the Dasyu from their home; creating wide light for the Aryas". The march to the plains is also summed up in several stanzas, such as 1.130.7-8, 1.131.4-5, 3.31, 7.100.4 etc.

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[40] Note that the Huns have been unattested to archaeologically until recently.

The actual identity of the enemies is not always easy to establish; they are often described, as even in modern times,[41] through a clever mix of myth and reality. Demons and earthly enemies are particularly hard to distinguish, and such names as *Cumuri, Dhuni, Pipru, Śambara* and *Śuṣṇa* obviously represent composite identities even if in some cases human foes and their forts are clearly meant (e.g. 6.20.7). In general, the victory of the Indo-Aryans over their earthly enemies is likened to the winning of light from darkness, or to the extraction of water by the agency of Indra's mighty bolt. The prizes of battle are repeatedly listed: "seed, water, and bodily progeny, the sun" (6.31.1); "for own bodies, water and sun" (6.46.4); the light (2.11.8; 7.5.6 etc.)

The aboriginal tribes encountered usually have strange, non-Indo-Aryan names: *Cumuri, Dhuni, Pipru, Śambara, Śuṣṇa*, etc.. In many cases the combination *-ṇḍ-* is a dead give-away: *Śaṇḍika* (2.30.8 - but see *Śaṇḍa*, below). The name Varo Suṣāman (8.23.28, 24.28 - cf. 8.60.18) stands out by being half-Indo-Aryan and half wrong as far as *sandhi* is concerned (*-o-* should not stand before *-s-*). Sometimes a local name is explicitly identified as being Dāsa, as in the case of *Balbūtha Tarukṣa* (8.46.32) which stands out on account both of the rare use of *-b-* and of the structure of the word.[42] *Bṛṣaya* is likewise described as follows: "(The goddess) Sarasvatī ... put down the ones decrying the gods, the progeny of the tricky *Bṛṣaya*. You won for us the land" (6.61.3). Another suspicious name is *Śṛbiṇḍa*,[43] which is mentioned, interestingly, along with *Anarśani, Pipru, Dāsa Ahīśu* (8.32.2) and *Arbuda* (8.32.3)

Sometimes, however, the enemies' names sound Indo-Aryan, even if they are described as Dāsas or "Blacks"[44] This may be explained by the frequent conflation of mythical enemies, representing forces of darkness/evil with real adversaries.For example, the Dāsa Ahīśu (8.32.2) has a perfectly good Indo-Aryan name, meaning "having quickness like a dragon". The fact that the Indo-Aryans fought each other as often as they fought non-Indo-Aryans easily explains the apparent anomaly: cf. 4.30.18: "You (Indra) also killed the two *Āryas*, Arṇa and Citraratha, on the other side of the *Sarayu*"; 6.26.5: Abhyāvartin Cāyamāna (a

[41] Cf. the "foreign devils" of the Chinese; the "Great Satan" of the modern Middle East, etc. As in any mythmaking, one may assume that, in some cases, even demonic enemies were real human beings in the (not even always) remote past.

[42] There is neither a root √*balb*, nor any suffix resembling *-ūtha*, in Sanskrit. Nor is any combination be it *balbū-tha, bal-bū-tha*, etc possible.

[43] See Kuiper 1993 (forthcoming).

[44] The meaning of "black" in the Ṛgveda represents a difficult problem; while it would be easy to assume reference to skin colour, this would go against the spirit of the hymns: for Vedic poets "black" always signifies evil, and any other menaing would be secondary in these contexts. Skin colour has, of course, played a significant role in Hindu society: cf. the term *varṇa* ("colour") used for social groups even in the Ṛgveda. A glance at modern marriage advertisements will amply confirm this obsession.

Pārthava) defeats the Vāraśikhas of the Vṛcīvats[45] on the *Hariyūpīyā*; also 6.27.6: "130 Vṛcīvats were killed by Daivavāta on the *Yavyāvatī* [=Zhob?]"; and 6.31.3: "Indra, ... beat down Dāsa *and* Ārya enemies".

The opposite is also at times true, for example in 6.63.9 where a typically Dāsa name (*Śaṇḍa*) is included in the list of Aryan offerers, or in 6.45.31-33 where *Bṛbu* is said to be "high above the *Paṇis* on the *Gaṅgā*. *Araṭva Akṣa* in 8.46.27 is apparently a *Nahuṣa* presenting offerings. Such names testify to the process of acculturation, which gathered momentum after the immigration and initial conquest and to which reference has already been made in my previous chapter.

Finally, in view of the discussion of hydronomy and place names in the previous paper, it is also interesting that the Indo-Aryans could not, apparently, pronounce local names, just as non-Indo-Aryan speakers had difficulty speaking Vedic Sanskrit. A clear example is that of *kīsta/śīṣṭa* (8.53.4).[46] The survival of non-Indo-Aryan place names (though of few river names) in areas such as Mahārāṣṭra provides one support for the theory that the speakers of Dravidian and other languages had a much wider distribution in protohistoric times. Combined with the evidence of substratum influences on even Old Indo-Aryan it suggests that language replacement proceeded principally through acculturation, although also aided by the dominant social position of the speakers of the incoming language.

5. The principal tribes

5a. The "Five Peoples"

It is interesting to note that this term (*pañca jana*) and its variants (*pañca kṛṣṭi/ pañca kṣiti/ pañca carṣaṇi/ pañca mānuṣa*) - usually held to include the Yadu, Turvaśa, Anu, Druhyu and Pūru - occur only once in the old book 2, as well as in book 4, clearly in the context of the Aśvamedha ritual,[47] which even in the Ṛgveda seems to involve the establishment of supremacy over one's neighbouring tribes in all directions. Cf. 4.38.10: "Dadhikrā has spread himself over the Five Peoples". Dadhikrā appears to have been the personal horse of the Pūru king Trasadasyu, who is not a very early figure in the context of the Ṛgveda.

[45] The name is open to debate; cf. *Varcin*, or the *-vant* suffix in *Mūjavant* ("the mountain having *mūja*").

[46] Note that there are many more cases which show this variation, not necessarily attested to inside the Ṛgveda: names in *K/Ś* such as *Karkoṭa/Śarkoṭa* (PS), and the group *kambara/la/ Śambara, kambu/śambu*, *Kamboja*/Greek *ambautai*.

[47] See the Aśvamedha hymns 1.162-163.

Even book 3 has the expression only once, books 5 and 8[48] twice; books 1, 7 and 9 thrice, book 6 four times and the late book 10 seven times. After re-calculating the frequency of the term taking into account the size of the various books, one may conclude that it referred to people already settled on the plains of the Panjab. Newcomers (in books 3 and 7) or those settled on the Borderlands (books 2 and 4) do not seem to like using it. Instead, some speak of the "Seven tribes",[49] such as the poet Nabhāka in 8.39.8 although he (8.40.7) also knows of the "Five Peoples". According to 8.41.2, Nabhāka lived at the confluence of the 7 rivers (of the Panjab). In one case the Five peoples even seem to be in conflict with Nabhāka's group; cf also the Āyu in 6.46.7, as well as Indra and the "3 times Nahuṣ" in 6.26.6. All of this is in need of further study.

By contrast, the Pūrus, who along with the Bharatas appeared on the scene later, began to use the designation "Five Peoples" immediately: as discussed above, they probably regarded themselves as being located at the centre. In the later books the tribes mentioned include both the older "Five Peoples" as well as the newcomers, namely the Pūrus and the Bharatas.

5b. The Yadu-Turvaśa

Although information on the membership of the "Five Peoples" is thus sketchy, some data can be collected from the Ṛgveda. The Yadu-Turvaśa do not appear in book 2, probably because the latter focusses on the Northwest, in the mountains and in the passes leading into South Asia from Afghanistan, where the Bharata chiefs Divodāsa and Atithigva are fighting the local chiefs (e.g. Śambara), as well as other Indo-Aryan speaking tribes. Although Turvīti and Vayya may be connected with the Turvaśa, this is no more than conjecture: they crossed the Sindhu when the gods stopped it (or, generally, "let the Sindhu flow northwards" - 2.13.12, 2.15.5-6?), and defeated the men of Āyu, Kutsa and Atithigva (2.4.7) who belonged to the Pūru-Bharata alliance. In addition to the similarities in names, a connection (if not equivalance) between Turvaśa and Turvīti may be indicated by the following statement in 1.54.6: (Indra) you helped the manly Yadu and Turvaśa, you helped the Turvīti and Vayya.

In book 4, the Yadu-Turvaśa appear only once, in 4.30.17, where they are saved from drowning by Indra (an event also recounted in a standard phrase in 2.15.5 and 5.31.8). This book deals with the traditional heroes and enemies of the Indo-Aryans in the northwest (Śambara, Varcin, and Divodāsa) but also lists the rivers Sarayu and Vipāś, the latter being firmly identified with the Beas in the Panjab. In book 5, the abovementioned verse celebrating their rescue from drowning provides the only account of the Yadu-Turvaśa. In book 6, however,

[48] At 8.32.22 with the poet Medhātithi Kāṇva.

[49] This corresponds well to the Avestan concept of the 7 *Karevar*.

they are more prominent, being at times friends and at times enemies of the Pūru-Bharatas. Indeed, in many respects book 6 is a pro-Turvaśa and Yadu book. An important statement (quoted above) regarding their migrations from distant regions occurs here (6.20.12 =1.174.9), and they are frequently associated with the Anu, Druhyu and Pūru, thus making up the "Five Peoples".

The Kāṇva portion of book 8 is even more favourable to them. Thus, in 8.10.5, the Druhyu, Anu, Turvaśa and Yadu are compared with the Aśvins staying in the east and west (poet Pragātha Kāṇva). Indra's deeds are well known to them, as shown by 8.45.27 (poet Triśoka Kāṇva), and they are praised in turn for their generous sacrificial gifts: "we have thought about the gift of 100 horses of Kuruṅga ... among the presents of the Turvaśa" (8.4.19). In the same hymn (8.4.7) they are remembered as important tribes, and Indra is said to be among them (8.4.1) - although he is also among the Ruśama (8.4.2), a tribe later associated with the Bharatas.[50]

To conclude, the Yadu-Turvaśa (and the Anu-Druhyu) are regarded as settled in the Panjab at the time of the arrival of the Pūrus and Bharatas.[51] They are prominent in books 8, 6 and 5 - which must be regarded as at least partly pro-Turvaśa and Yadu - but yield to the Pūrus and Bharatas in books 3 and 7 (as well as 1 and 10). However, remarkably few names of their chieftains survive in the Ṛgveda. Clearly, this corpus was composed primarily by the Pūrus and Bharatas and spans the story of their immigration: the initial stages (beginning with their stay still on the western side of the *Sindhu*) in books 4, 5, 6 and 8 and the final stage (including the defection of the Pūrus and the victory of the Bharatas in the battle of the 10 kings) in books 3 and 7. This story is to be elaborated next.

5c. The Pūru

The Pūru appear to be a broad conglomerate of tribes, to which at one time the Bharatas also belonged. They could boast, even in the Ṛgveda, of a long royal genealogy (see below) with a possible side-branch. Both they and the Bharatas seem to belong to the Āyu, whom the BŚS (quoted above) described as the an-

[50] 8.4. appears to contain the reminiscences of Kāṇva Devātithi, comprised some time after the immigration of the Pūru-Bharata. Similarly, 1.18.8, where the Yadu-Turvaśa, Anu-Druhyu and Pūru all occur together.

[51] Their precise location is not well known: RV 8.10 lists them from W to E as Druhyu, Anu (no metrical reason) and Turvaśa, Yadu (order dictated by metre). The Anu live on the Paruṣṇī in 8.74.15 (*in a Kāṇva book*). The Druhyu may be situated in the NW; the Epics later place them in Gandhāra. The Turvaśa are linked to the Pañcālas in ŚB 13.5.4.16. The Yadu are identified with the Yakṣu of 7.18.14 by Schmidt (1980); they stay on the Yamunā with their chief Bheda at the conclusion of the batle of the 10 kings.

cestors of the Āyava[52] tribes: i.e. the ones (Kuru-Pañcāla, Kosala-Videha) who "moved forward" [from the northwest of South Asia into its heartland], instead of "staying behind" as the Āmāvāsya tribes (Gandhāri, Araṭa, Parśu) did. As I have just related, they (along with the Bharatas) occupy centre-stage in much of the Ṛgveda, succeeding earlier groups of migrants such as the Turvaśa and the Yadu.

Although the old book 2 deals with the Pūru only in passing, in book 4 the principal chieftain is already Trasadasyu, the "king" of the Pūru (especially in the Dadhikrā hymns 4.38-4.43, which give his ancestry). In 4.42 he is notably called Paurukutsya,[53] the son of Purukutsa. In 1.63.7 Purukutsa himself is clearly related to the Pūrus, not to mention the Bharatas:[54] "You Indra broke seven forts for Purukutsa; as you Indra lay down the (enemies) for Sudās like offering grass, you created for Pūru liberation from distress". Both seemed at one time to belong to the same tribe, and in book 6 were still clearly allies. In 6.18.13 Kutsa, Āyu and Atithigva were handed over to Tūrvayāṇa: i.e. (Puru)kutsa, the father of Trasadasyu and the "king" of the Pūrus (cf 1.147.2-3) and his apparent contemporary, Atithigva the chief of the Bharatas, were both defeated by the otherwise little known chief Tūrvayāṇa (cf. 1.53.10, 1.147.2-3, 2.14.6) of the Turvaśas(?).[55] By book 7, of course, the situation has changed as the Pūrus and the Bharatas have parted ways. In the hymn celebrating the battle of the 10 kings the Pūrus are among the victims of Sudās (7.18.13; also the Turvaśa and Yadu in 7.18.14). Even the much later JB (3.238) preserves this tradition of enmity when it states that Bharata were hard pressed by the Ikṣvāku, a subtribe of the Pūru, on the western side of the Sindhu.

The testimony of the Jaiminīya Brāhmaṇa also confirms that both the Pūru king Trasadasyu and the Bharata king Divodāsa were still living on the western side of the *Sindhu* during the composition of Book 4. An exception is 4.38.10 where Dadhikrā is said to have spread his force all over the "Five Peoples", although some these may themselves have lived on the west bank of the Indus. This verse may have preserved the initial incursion of the Pūru ruler Trasadasyu into the land of the Seven Streams, celebrated in his Aśvamedha ritual (4.38-43) where he moulded the defeated Anu-Druhyu and Turvaśa-Yadu into the "Five Peoples".

[52] Cf *Āyu* = *Nahuṣasya viśpati* in ṚV 1.31.11.

[53] It is difficult to make sense of the frequently occurring appellation "Kutsa". Is he the famed son of Indra, in which case Trasadasyu would enjoy multiple divine ancestry as the son of Mitrā-varuṇa as well as the grandson of Indra - see Schmidt 1992)? Or is Kutsa a short form of Purukutsa? Note also 4.16 where Kutsa is the son of Arjuna, 4.26.1.

[54] *Pace* Geldner and his notes *ad* 1.174.2, 6.20.10 (4.21.10), 7.18.13.

[55] For similar formations involving tribes and their chiefs cf: Kuru: Kaurayāṇna Pākasthāman 6.23.21; Bhṛgu: Bhṛgavāṇa 1.71.4; Pūru: Paura 8.3 (as well as, of course, Purukutsa); Kaurame > Kaurave (see Hoffmann 1975: 6-7).

Book 5 still presents the Pūru in a favourable light - cf. 5.17.1: "Pūru shall call Agni" - and even contains a rudimentary genealogy, the only one of its kind in the Ṛgveda:

(*Durgaha)[56]	Grandsons: *napāto durgahasya* 8.65.12
|	
Girikṣit	cf. 5.33.8: Gairikṣita
|	
Purukutsa	5.33.8: Trasadasyu, son of Purukutsa
|	
Trasadasyu Contemporary (for at least part of the book)	5.27.3: Trasadasyu who for the 9th time asks for your favour=Tryaruṇa?[57]
|	
Tṛkṣi	10.22.7: Trasadasyu's son

Later kings:

Trivṛṣan	5.27: (Trāsadasyava?)
Tryaruṇa	5.27: (perhaps a descendant of Trasadasyu)
Aśvamedha	5.27: his friend?

In book 6 (at least partially a pro-Yadu-Turvaśa book) the Pūru are already frequently mentioned together with the Druhyu, Yadu and Turvaśa, as in 6.46.7-8 where Tṛkṣi, known elsewhere as the son of Trasadasyu, is mentioned in the same breath as the wealth of the Pūru or of the Druhyu, the Nahuṣa tribes and the "Five Peoples".[58] Some of their history is further revealed by this book. Their earlier chieftain had been Purukutsa, the father of Trasadasyu who is no longer mentioned here, suggesting that it was a post-Trasadasyu book, even if Purukutsa is still remembered (in 6.20.11) as destroying "autumnal forts" in the Afghan mountains. The last contemporary ruler mentioned in book 6 is Tṛkṣi. As already mentioned, the Pūrus and the Bharatas are still allies at this stage (cf. 6.18.13 discussed above).

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[56] In all probability a horse, not a human being. See Schmidt 1992. But, consider his grandsons; cf. Geldner (1951) *ad loc.* and *ad* 4.42.8

[57] This hymn has to be divided into two parts, and may refer to two different times and chiefs, Tryaruṇa and Trasadasyu. Cf. Geldner (1951) *ad loc.* Oldenberg (1888: 197) regards the hymn as violating the verse numbers at the end of a series: it has to be divided into *tṛcas* and may be a real addition.

[58] Oldenberg (1888: 197 sqq.) regards this hymn, also, as one that violates the order at the end of a series, and as one to be divided into *pragāthas*.

Although book 7 is strongly pro-Bharata, it provides several, conflicting glimpses of the Pūru. Thus, a comparatively late hymn, 7.96.2,[59] places them on the Sarasvatī. The author of this hymn was descended from none other than Vasiṣṭha who had been present at the battle of ten kings, where he prayed for the "defeat of the Pūru who speak ill at the sacrifice" (7.18.13). In another hymn, 7.5.3, Vasiṣṭha himself praises Agni for vanquishing the "black" enemies of the Pūrus[60] - this really ought to have been composed for the Bharatas, instead. Inconsistencies also appear in hymn 7.19.3 which looks back on the ten kings' battle but mentions Indra's help for both Sudās and Trasadasyu, the son of Purukutsa, and also refers to the Pūrus' winning of land (for another possible synchronism see 1.63.7). All this fits the picture of shifting alliances, to which Vasiṣṭha himself alludes in 7.18. At one time the Bharata were a subdivision of the Pūrus - even their king Divodāsa is called a Pūru in 1.130.7 - and split off only at an opportune moment to further their own ends. The 10 kings' battle marks the ultimate success of this policy.

After their defeat at the hands of the Bharatas, the Pūrus no longer play a central role in South Asian history. They are said to dwell on the Sarasvatī in 7.96.2 (once also on the Suṣoma = Soan (?) but by historical times have moved slightly to the West as Alexander encountered the local chief *Poros* on the Jhelum (Hydaspes). That *Poros* belongs to the Pūru is suggested by the (in South Asia) frequently attested practice of naming princes (or even territories) after their clan: Pāṇini does it for the Kamboja (cf. Iranian *Kambujiya*).

5d. The Bharata conquest

All this brings us, conveniently, to the Bharatas, who had risen to a dominant position by the time the family books were put together. As already pointed out, in book 2 they were seen fighting their way through the NW mountain passes (under Divodāsa), opposed by enemies both Aryan (e.g. Arśasāna) and aboriginal (e.g. Śambara).[61] Their progress was clearly tortuous: in 2.14.7 (cf. 6.18.3, 1.53.9-10), after the slaughter of thousands of men Āyu, Kutsa and Atithigva

[59] Once again to be divided into *pragāthas*, with some additions (Oldenberg 1888: 106). The testimony of this hymn corroborates 8.64: here, in verse 10 the Pūrus are mentioned just prior to *Sāryanāvant*, *Suṣoma* (= Soan?) and *Ārjikīya*, prominent geographical features in the Eastern Panjab, where a king *Poros* (named after his tribe as usual - cf. Pāṇini, etc.) was in historical times to defy yet another invader's advance into South Asia.

[60] Similar successes are recounted in 1.131.4, where the Pūrus crossed 5 streams, doubtless with divine aid.

[61] A reference to the goddess Sarasvatī in 2.3.8 probably also refers to an ancestral home in Afghanistan, being reminiscent of the Avestan river *Harax^{v}aiti*, rather than referring to the modern Ghaggar-Hakra in the Panjab.

were handed over by Indra to the (Turvaśa?) chief Turvayāṇa.[62] In general, book 2 is replete with small tribes making inroads into the country of the Seven Streams (2.13.8, 2.14.6). Nevertheless, the Āyu tribes did move on, as shown by, for example, 1.131.5: "The Uśij, we and the Āyu crossed stream after stream"; by 10.49.5, where the Āyu defeat the aboriginal chief Veśa; and by 7.5.6, where Agni drove the Dasyus from their homes.

All of this is well described by the poet Parucchepa Daivodāsa, whose name makes him at least a member of Divodāsa's tribe, but who is most likely his son.[63] His placement at 1.127-139 is of interest as it associates him with the Āṅgirasa (second) part of RV 1. Geldner (1951) notes that the poet is not mentioned in his hymns, but that he counts himself amongst the Divodāsa at 1.130.10, and among the Pūru at 1.131.4. Pūru is especially mentioned at 1.129.5; Pūru Divodāsa at 1.130.7.[64] All this attests once again to the close relationship of the Pūrus and Bharatas, at least in the initial stages of their move into the Subcontinent.

It is Divodāsa, who finally brings the Bharatas succesfully over the passes into South Asia, having defeated the Dāsa chief Śambara in the 40th year of campaigns.[65] Śambara, who is named as the son of Kulitara, was probably an aboriginal tribal chief in the mountainous Borderland zone; although later elevated to the status of a demon, in the comparatively old book 4 he still appears human, and his father's name is at least half-Indo-Aryan.[66] Allusions to his hill-fortresses are numerous (e.g. his 99 forts in 6.47.2. Cf also 6.43.1, 6.61.1). All the same, book 4 still places the Bharatas on the far (western) shore of the *Sindhu.*

By book 5 the Bharatas have acquired prominence, but, as already related, they remain allied to the Pūrus.[67] In book 6, of the Bhāradvāja,[68] the Bharatas

[62] Further evidence of a Bharata connection with Āyu is provided by Bhṛgu's offer for Agni among the Āyu, the ancestor of the Bharata (2.4.2 also 2.36.2: "drink sons of Bharata").

[63] There are other *rājarṣis,* for example Devavāta/Devaśravas.

[64] Note also Bhāvya living on the *Sindhu.* Oldenberg (1888) notes that 1.133 is to be divided into 1-5 and 6-7; the first part is young but the order is correct as the last two stanzas are the last and shortest Indra hymn of the series. Hymn 1.135 is to be divided into *tṛcas*; 1.139 is doubtful.

[65] 2.12.11. But, see Witzel 1984 for the mythical significance of the number 40. In 4.30.20 he is also aided by Indra in a similar exploit - that he is mentioned in the same hymn as Yadu and Turvaśa (4.30.17) is due to the *tṛca* character of the hymn. 4.27-41 (Vāmadeva) all have violations of order at the end of a series (Oldenberg 1888: 197 sqq); 4.30-32 are hymns to be divided into *tṛcas.*

[66] Cf also Bṛsaya, 6.61.3; the combination -*b*- + -*ṛ*- is interesting - see Kuiper 1991.

[67] E.g. 5.11.1: "(Agni) is shining for the Bharatas" and 5.54.14: "You (Marut) bring a horse (*arvat*) for the Bharata", alongside 5.17.1: "The Pūru shall call Agni". On the assumption that the books were composed within the life-span of a few generations, the Pūru do not seem to be regarded as hostile here.

[68] Mentioned alongside Divodāsa in 6.16.5 & 6.31.4 (as past fact; 6.31 and 6.32 are composed by Suhotra Bhāradvāja).

and their king Divodāsa play a central role. The latter's allies - according to the late[69] hymn 6.47 - were Prastoka (6.47.22), Aśvattha (6.47.24) who gave gifts to the Atharvans, and Śṛñjaya's son who gave to the Bhāradvāja poets (6.47.25). The same hymn also notes the defeat of the Dāsa Varcin at Udavraja[70] in 6.47.21. Another important battle is related in 6.27. 5 and 8, where Cāyamāna and his son Abhyāvartin (also called Pārthava) defeated the progeny of Varaśikha on the *Hariyūpīyā*, as well as 130 armed Vṛcīvats on the *Yavyāvatī*.[71] These heroes fight together with Śṛñjaya Daivavāta who is reported to have defeated Turvaśa in the same hymn (6.27.7).

5e. Sudās and the Bharata rise to supremacy

Although it was Divodāsa who established a foothold in South Asia, Bharata preeminence in the Panjab was established by his grandson Sudās Paijavana. The early part of the movement is described mostly in book 3, a major Bharata book. Apart from Sudās, the Bharatas Devaśravas and Devavāta are also mentioned.[72] This book was composed by Viśvāmitra (and his clan), the *purohita* of Sudās until his ouster by Vasiṣṭha, the reputed author of much of book 7. It praises the dominant position of the Bharata in an area more or less corresponding with the later Kurukṣetra,[73] culminating in an *aśvamedha* by Sudās to commemorate his triumphs in a late hymn.[74] He overcame foes in the north, east and west in establishing the Bharata realm. However, he had no enemies to the south, where the Khaṇḍava forest was located (see TA 5.1), being inhabited by despised aborigines called the *Kīkaṭa* (3.53.14), led by Pramaganda and Naicaśākha.[75]

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[69] Due to violation of order at the end of a series: Oldenberg (1888: 197 sqq) regards this hymn - composed by Garga Bhāradvāja - as a real addition.

[70] Cf. *Daśa-vraja*, *Vṛcīvat* at 6.27.5-6; also the foreign name *Mūja- vat* with an Indo-Aryan suffix.

[71] The combination allows the location of both rivers in eastern Afghanistan on the premise (see Hillebrandt 1913: 49 sqq.) that the Yavyāvatī is the modern Zhob. The equation of Ṛgvedic *Hariyūpīyā* with the modern town of Harappa (suggested by Wheeler (1968: 27) as well as by Allchin and Allchin (1968: 155)) is totally without basis; *-p-* would have disappeared in the Prakrit and New Indo-Aryan stages of Panjābi.

[72] In hymn 3.23.2 and 3; Devavāta is probably the father of Śṛñjaya Daivavāta (4.15.4, 6.27.7), again indicating the link between Bharata and Śṛñjaya..

[73] Defined in the Ṛgveda (3.23.4) by the naming of the 3 rivers *Āpācyā*, *Dṛṣadvatī* and *Sarasvatī*.

[74] I.e. 3.53.11-14. Another real addition according to Oldenberg (1888) along with 3.52. Note also that 3.23 and 3.52 belong together. 3.53.15-16 mentions the Jamadagnis and the teachers of Viśvāmitra. For similar family hymns see 6.47 and 7.33.

[75] It should be pointed out that the Kīkaṭa earned scorn for cultural reasons, namely their neglect of proper oblations: "What is the use of cows among the Kīkaṭa if they do not make offerings with the milk they obtain". They are still frequently misplaced in Magadha (McDonell and Keith 1912, Schwartzberg 1975), even though their territory is clearly described as being to the south of Kurukṣetra, in eastern Rajasthan or western Madhya Pradesh, and Magadha is beyond the geographical horizon of the Ṛgveda.

The principal event of Book 3, is the crossing of the Beas and the Sutlej (*Vipāś*, *Śutudrī*) with the help of Viśvāmitra in 3.33. Similar river crossings are mentioned occasionally elsewhere also (Kwella 1973), usually involving the temporary (accidental) damming of a river to hold back the waters. This put the Bharatas within reach of Kurukṣetra. Yet, their victory was not immediate, as other tribes began to unite against them, either due to the intrigues of the ousted Viśvāmitra, or simply because of intratribal resentment. This led to the famous battle of the ten kings which, however, is not mentioned by book 3, as Viśvāmitra (its author) had by then been replaced by Vasiṣṭha as the *purohita* of Sudās. There is even the possibility that it was Viśvāmitra who - in an act of revenge - forged the alliance against his former chief. Whatever the reason, however, the alliance failed and the Pūrus were completely ousted (7.8.4 etc) along with Viśvāmitra (= Bhṛgu, 7.18.6).[76] Although surviving as a power in the Panjab, they became peripheral to the subsequent course of events. As the battle is pi-votal and, probably for that very reason, well documented, it is worth exploring in some detail below.

But first a few remarks about book 7 and its authors, Vasiṣṭha and his descendants who count themselves among the Aṅgiras (7.42.1, 7.52.3). Vasiṣṭha also claims divine ancestry having been procreated by Mitrāvaruṇa and Urvaśī (7.33.1); it is mentioned that he came from across the Sindhu, i.e. from eastern Iran (7.33.3). He was the leader of the priestly clan of the Tṛtsu: "You Indra and Varuṇa sought to help Sudās ... while the Tṛtsu, walking about in white, composing poems, performed the sacrifice" (7.83.8); also "The ones walking about in white, with the braid on the right side ... I cannot assist my Vasiṣṭhas from far away" (7.33.1 - an additional hymn).

As to the battle hymn (7.18), it has been given prominence in Vedic studies, and may have unduly coloured our understanding of the period. We see the opposition of the Bharatas and the "Five Peoples" as typical, yet the alliance against Sudās was temporary, as was an earlier one of 20 chieftains (perhaps?) at the time of Atithigva (1.53), presaging the *dāśarājña*. The crucial point is the alleged change of sides by the Pūrus who were formerly allies of the Bharatas, as well as by a Bhṛgu, who was probably Viśvāmitra, a Bhṛgu pupil.[77] This event has only come down to us from a Bharata point of view (who were, after all, the victors!); it is more likely, in fact, that it was the Bharatas who severed the alliance and struck out on their own with a new *purohita*, Vasiṣṭha.[78]

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[76] Viśvāmitra is, via his teacher Gāthin, a Jamadagni, i.e., a Bhṛgu (see table above!).

[77] The mutual hatred of Vasiṣṭha and Viśvāmitra is proverbial: for the former's protests against alleged sorcery see 7.21.4; 7.34.8; 7.61.5; 7.81.1a; 7.104. Cf also 10.66.14, composed in Vasiṣṭha's spirit (Geldner 1951).

[78] Mentioned as Sudās' *purohita* not only in 7.83.4, but also in ŚŚS 16.11.14; he appears as the typical *purohita* in 10.150.5.

The geography of the battle hymn (and later summaries as in 7.33) clearly reflects a look back at the immigration of the Bharatas, composed - or rather, assembled[79] - during the time of the chieftain Bheda and of the grandsons of Devavat of the Sudās lineage (7.18.22). The process began beyond the *Sindhu*, which Vasiṣṭha crosses in 7.33.9. Then came the battle of the ten kings on the Paruṣṇī (the modern Ravī in Pakistan), near Māṇuṣa, a location "in the back" (west) of Kurukṣetra, which the Bharatas won by breaking a (natural) dyke on the river.Their eventual arrival on the Yamunā and the defeat of the local chief Bheda are finally chronicled on 7.18.19. The whole process refers to the origins of the Bharatas and Vasiṣṭha[80] in eastern Iran; their move into the Subcontinent is also reflected elsewhere in book 7 (7.5.3, 6)[81] and summed up in 7.33.3: "thus he (Indra) transgressed with them (the Bharata) the Sindhu, thus he soon killed Bheda in (the Yamunā battle), thus he helped Sudās in the Ten Kings' Battle ..." Although they reached as far east as the Yamunā, however, their epi-centre was in the area around the Sarasvatī,[82] previously occupied by the now defeated Pūru.[83]

The most detailed, and ingenious, reinterpretation of the battle hymn, RV 7.18,[84] was undertaken by H-P. Schmidt (1980). The hymn is clearly a late addition; although Oldenberg (1888: 197 sqq) regards it as a real addition. Even the Anukramaṇī says that it was composed by Vasiṣṭha (verses 1-9) and his sons (10-14). Be that as it may, along with an account of the battle of 20 kings and 60,099 warriors (1.53), it served as the prototype of the Mahābhārata battle of Epic fame.[85] The opposing forces may be summarised in the following table:

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[79] It is interesting to note that later texts show confusion about the participants in the battle, notably JB 3.244, which speaks of Pratṛd instead of his descendant Sudās. Such confusion is not uncommon in bardic tradition; parallels may be seen in the case of Theodoric and Ermanric in Gothic history. The battle of twenty kings in RV 1.53 may also point to such a shift in tradition.

[80] Compare Avestan Vahišta with Vedic Vasiṣṭha. Also, in 7.33.9 it is not Manu but Yama who is regarded as the first man, which agrees with Yima's role in Iran; cf RV 10.13.4 and see also 1.83.5 (composed by Gotama Rāhugana/Uśanas Kāvya).

[81] Here it appears as if the Pūru were still allies of the Bharatas: cf. 7.5.3, quoted above, where Agni "shines for Pūru" in destroying non-Aryan opponents.

[82] Prominent in book 7: it flows from the mountains to the sea (7.95.2) - which would put the battle of 10 kings prior to 1500 BC or so, due to the now well documented desiccation of the Sarasvatī (Yash Pal *et al.* 1984), it is the seventh river, her mother is the Sindhu (7.33.6), and so on. Two hymns (7.95-96) are composed solely in praise of the Sarasvatī.

[83] Which is probably why the later king, *Poros*, (named, no doubt after his tribe), was found by Alexander slightly to the west of Kurukṣetra, cf Arrianus, Indikē 5.8 etc., cf. 5.21.

[84] As alluded to previously, the battle is also treated in 7.33 (another addtional hymn, containing ṛeminiscences by Vasiṣṭha's sons) and in 7.83 which partly quotes Vasiṣṭha's prayer during the battle.

[85] Note the shifting of the tradition already in the early YV Saṃhitās: MS 3:40.6, JB 3.244, PB 15.3.7 have substituted other names for Sudās and Vasiṣṭha

Principal protagonists:	?(Trasadasyu? 7.19.3)[86]	Sudās Paijavana, son of Divodāsa
Priests / poets:	Bhṛgu (= Viśvāmitra?) Note: "old Kavaśa" and the chieftain of the Druhyu	Tṛtsu /Vasiṣṭha[87]
Allies:	- Turvaśa, Yakṣu (= Yadu?) - Druhyu; Anu and Druhyu with 60060 men[88] - Matsya, Paktha, Bhalāna, Alina, Viṣāṇin, Śiva (= Śibi?) - Pṛṣṇigu's; 2 Vaikarṇa[89]	Bharata
Later, on the Yamunā:	- Aja, Śigru, Yakṣu,[90] - Chief Bheda	

Unfortunately, most tribal names occur only once, in this hymn, and thus they are difficult to identify. The following verses are the key to the hymn, and have been rendered by Schmidt (1980) as follows [along with my additions]:

5. Indra made even the floods, which had spread, into fords easily to be crossed for Sudās; he made the Śimyu who defied (our) new song, his imprecations the flotsam of the rivers
6. Turvaśa, the Yakṣu ("sacrificer")[91] was himself the fore-offering; also, as it were, the Matsyas ['fishes"], who were hooked on wealth (like fishes on bait). The Bhṛgus and Druhyus ["cheaters"] obeyed (followed suit); the companion crossed (overcame) the companion in the two (armies) headed in opposite directions.
7. The Pakthas, Bhalānas, Alinas, Viṣāṇins and Śivas called out: "The feast-companion of the Ārya who led (us) here (previously), has (now) out of desire for cows, attacked the men (us) on behalf of the Tṛtsus".
8. Evil-intentioned, making Aditi miscarry, the fools have divided the Paruṣṇī. With his greatness, he (Turvaśa) encompassed the earth, lording over it. As the animal victim, the wise (priest) [Bhṛgu/ Vasiṣṭha] lay down, receiving due respect.
9. They went to the Paruṣṇī, their doom, not their (intended) goal. Not even the swift one has reached home. Indra made the swiftly running, treatyless enemies, who were talking like castrates in the world of a man, succumb to Sudās.
10. They went from the pasture like cows without a herdsman, assembled for an alliance made on the spur of the moment;[92] the Pṛśnigus ["sent down by Pṛśni"] obeyed, teams and supply lines.

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86 Typically, the name of the principal opponent is not even mentioned - it is *not* Bheda, as Geld-ner (1951, *ad* 7.33.3) thinks.
87 Helped by the Yamunā as well! - cf. verse 19.
88 A standard figure: cf. 60069 men in 1.53.
89 Cf the *caturgaośa* in Avestan: V.1
90 Who bring horseheads as tribute.
91 "Sacrificer" - a pun for Yadu.
92 As seen from the point of view of the Bharata.

Hymn 7.19 also looks at this battle, but stanza 3 mentions Indra's help for both Sudās and Trasadasyu (the son of Purukutsa), and alludes to the Pūrus as winning land. This is the only clear mention of both chieftains in the same stanza (next to 1.63.7), but even then no clear synchronism is established. In stanza 8 the wish is expressed that Indra kill the Turvaśa (chief) and the Yadu chief while helping (the Bharata chieftain) Atithigva.

The entire book 7 is thus a snapshot of history: the incursion of the Bharata into the Panjab from across the Sindhu, and their battle with the "Five Peoples" and the Pūru. It celebrates the victory of Sudās in the Battle of the 10 Kings, which once and for all established Bharata supremacy in the Panjab, and set the stage for the formation of the first South Asian "state" under the Kuru tribe.[93]

5f. The Bharata reforms

The final question remaining to be answered here takes us back to the nature of the Ṛgveda itself. Was there an early effort at collection of the materials by the Pūrus? More fundamentally, why were the hymns collected at all, and *how* could they be collected? They were, after all, the sole property of a few clans of poets and priests who were not willing to part with their ancestral and (more or less) secret knowledge.[94]

We know very little about the Pūru domination in the Panjab. It is only clear that they were the leaders in a coalition of Five Peoples, and some other tribes, against the Bharata chief Sudās in the *daśarājña* battle. We know, indeed, much more about the latter, who settled his tribe down along the Sarasvatī and celebrated his victory with a horse sacrifice, which established his claim to rule over all regions.[95] Sudās could not have supervised the compilation of the family books, as the killing of his sons and the survival of his grandson at the time of Viśvāmitra's descendants are recorded in a late hymn (3.53) composed by the descendants of Viśvāmitra. Still, he may well have provided the initial impetus, with the addition of later verses after his time, for understandable reasons: like any newcomer he wished to enhance his status by including honoured old and new poets in a collection of hymns.

On balance, the Pūru and the Bharata are represented in roughly equal proportions in the corpus. Taking into account the theory of intermarriage between the two royal houses,[96] the family books might have been collected at the

[93] See Witzel (forthcoming).

[94] Note how certain refrains at the end of hymns act as "family seals", laying down the claim of certain families to parts of the corpus. Most hymns were, of course, recited in public and a quick study could have memorised and taught them subsequently.

[95] Except the South which was occupied by aboriginal peoples. See RV 3.53.11-14.

[96] See Witzel 1989b and Witzel (forthcoming) for further details.

establishment of the union, probably under Kuruśravaṇa Trāsadasyava (or his father). The frame with strophic books around the family books (i.e. 1.1-50 and book 8) could have been effected by the same dynasty, in order to include their favourite Kāṇva poets in a prominent position. Actually, RV 1.51 begins with the hymns of Savya Pājra which include (in 1.53.9) an interesting reference to Suśravas fighting the battle of 20 kings.[97] This is in close connection with a reference to Tūrvayāṇa fighting Āyu (the mythical ancestor of the Bharatas), while in 1.54.6 Indra's help for Yadu and Turvaśa is lauded. All of this seems a bit too pro-Pūru to be taken as the intention of a Bharata chieftain.[98]

A fairly early collection of a core of hymns by some groups/person(s) is indeed indicated by an *early* Sāman collection now represented by the "Soma book". Although the Sāmaveda collection we now have has been taken mainly from books 8 and 9 (note again the central role of the Kāṇvas), there is an earlier Sāmaveda collection; the Ṛgveda knows of it and respects it.[99] However this might have been, the assembly of the Ṛgveda continued even after the initial collection. This is especially clear in view of the later hymns (i.e. not the originally forgotted or excluded hymns - many probably of pro-Turvaśa-Yadu/Anu-Druhyu character - that were later collected in books 1 and 10).

In light of the preceding discussion it is little wonder that the collection is so unified; it represents the recasting of most early material in a Pūru and Bharata mould. This is reflected even in the language of the hymns: had the texts come down unchanged, they would have contained far more "eastern" forms - such as nominative sing or genitive sing. -*e*-. However, only a few local, pre-Bharata characteristics survive, such as the occurrence - even predominance - of -*l*- in certain words and forms.

6. Summing up

By the time of the composition of most Ṛgvedic hymns, the Yadu-Turvaśa and the Anu-Druhyu had already been well established in the Panjab. As suggested above, their locations have not been determined with certitude although the Anu may be tied to the river Paruṣṇī, the Druhyu to the Northwest and the Yadu

[97] 1.53.9: *tvám etā́ñ janarājño dvír dáśābandhúnā suśrávasopajagmúṣaḥ* |
ṣaṣṭíṃ sahásrā navatíṃ náva śrutó ní cakréṇa ráthyā duṣpádāvṛṇak ||
1.53.10: *tvám āvitha suśrávasaṃ távotíbhis táva trā́mabhir indra tū́rvayāṇam* ...

[98] But if the frame was due to later accretion or deliberate addition this could have been the work of later Kuru chieftains who added to the Bharatas' (Kuruśravaṇa's?) first collation of RV 2-7.

[99] See Oldenberg 1888. On the other hand, as he himself points out (on p. 328), during the time when the Sāman, the older Yajuṣ and the Atharvan texts came to be fixed, the Ṛgveda text tradition had already been formed and fixed, with relatively few exceptions, in the form that we know it today.

with the Yamunā. They retain only the dimmest recollection of their move into South Asia: they were "brought from afar" (6.45.1), "crossed (were brought by Indra over) many waters" (1.174.9 = 6.20.12) as well as narrow passages (2.11.18), and defeated the Dasyu who are said to be situated to their left (i.e. North). Their previous home is, thus, clearly the mountainous country of Afghanistan to the west (especially along the *Harax^{v}aiti* - Helmand - and *Haroiiu* - Herat - rivers corresponding to Vedic *Sarasvatī and Sarayu*). The next wave is represented by the Pūru, although their movement into the Subcontinent had also become a done deed by the time most Vedic hymns were composed. The Pūru are thus included among the "Five Peoples" whom they initially dominated. Finally, the Pūru contained a subtribe, the Bharatas, who were the latest intruders and who thoroughly disturbed the status quo.

The result of successive waves of migrations was frequent warfare and a pattern of shifting alliances. This is clearly seen in the most prominent historical event recorded in the Ṛgveda, the battle of the 10 kings, which followed the ouster of the Bharata *purohita*, Viśvāmitra (who was replaced by Vasiṣṭha), and the breaking away of the Bharata from their former Pūru allies.[100] Books 3 and - particularly - 7 detail the ultimate victory of the Bharatas over the other tribes (eventually including the Pūrus and their - probable - Ikṣvāku sub-tribe), and their settlement on the Sarasvatī, which became the heartland of South Asia well into the Vedic period. It is here that RV 3.53.11 places the centre of the world (*vara ā pṛthivyāḥ*), with subdued enemies in all directions (except to the South),[101] and here Sudās celebrates his victories with a horse sacrifice, which is clearly the precursor of the Śrauta rite. Considering that the area provided the only passage from the Panjab to the newly emerging Gaṅgā Valley, between the mountains to the north and the forests and deserts to the south, its prominence is not surprising. Even in later times, most prominent battles for control of the Subcontinent were fought here (Panipat etc.)

The Ṛgveda thus represents, above all, the history of two royal lineages (Pūru and Bharata) towards the middle of the Ṛgvedic period. Unfortunately, later tradition contains few accounts of this era. Although we would expect something from the texts of the *mantra* period, at least, as they follow on the heels of the Ṛgveda, the nature of the texts retards us. The contents of the *formulae* of the ritual clearly tell us no more than a book of the Catholic mass would without the Old and New Testament parts. Later, only a few scraps of information exist: the Jaiminīya Brāhmaṇa remembers the crossing of the Sindhu by the incoming Bharatas and Ikṣvākus (most likely another sub-tribe of the Pūrus), while BŚS

[100]The account of the battle of the ten kings formed the prototype of the Mahābhārata, whose nucleus of 20,000 verses already existed in the late Vedic period (see ŚGS for evidence).

[101]This forested area was under the control of aboriginal tribes, of whom the Kīkaṭas led by Pramaganda are prominent. Even later the the South was a place fit only for banishment (10.61.8)

(18.44: 397.7) contains the most explicit statement of an immigration into the Subcontinent (quoted above). However, even these relatively early texts manage to garble the evidence. Thus, the JB (§205) calls Sudās Kṣatra, while KS 21.10: 50.1 has Pratardana and MS 3.7.7 Pratardana Daivodāsi. Elsewhere, JB calls an Ikṣvāku chieftain Sudās Paijavana even though in JB (3.244 = §204 = 3.237) the Bharatas (whose king Sudās is) fight the Ikṣvakus. Then, JUB 4.6.1.2 describes friendly relations between the Bharatas and Bhagīratha Aikṣvaka. In light of these problems one could hardly expect the later, heavily inflated, Epic and Puranic traditions to be of help. Clearly, Ṛgvedic history will have to be reconstructed principally from the Ṛgveda itself. It is hoped that the present paper has laid some of the essential groundwork for this, along with demonstrating the fruits of a new analysis of the text, making use of the various parametres of geography, chronology (as provided by the lineages), textual composition and so on.

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<u>Appendix A: Geographical Data in the Ṛgveda</u>

Book**	West	Northwest	Panjab	Kurukṣetra	East	Unknown
II	*Sarasvatī?*[1] 2.41.6 *Ūrjayantī*[1] 2.13.8	Mountains 2.12.11 7 *streams* 2.12.12 *Sindhu* crossed 2.15.6				
III			–> *Śutudrī, Vipāś* 3.33.1	*Āpayā, Dṛṣadvatī, Sarasvatī* 3.24.3		
IV	*Gomatīs* 4.21.4 Vām. *Sarayu*[1] 4.30.18 Vām. 'other side of'	*Rasā* + *Sindhu* 4.43.6 7 streams 4.28.1	 *Vibālī* 4.30.12 Vāmadeva *Vipāś* 4.30.11 Vām.			*Kusavā* 4.18.8 (+*Pastyā* 4.55.3)
V	*Anitabhā, Sarayu*[1] *Krumu* 5.53 Śyāv. < *Gomatīs* 5.61.9 >	*Kubhā, Rasā* & *Sindhu* 5.53.9 Śyāv.	*Paruṣṇī* 5.52.9 Śyāvāśva	*Yamunā* 5.52.17 Śyāv.		
VI	*Hariyūpīyā, Yavyāvatī,* 6.27.6 < *Udavraja*[2] 6.47.21 >	Rivers to the sea 6.17.12 Mountains and plains 6.24.8		Sarasvatī and 7 sisters 6.61.3	*Gaṅgā* 6.45.31	

**Rivers and mountains are written in Italics, and tribes in capitals. Additional hymns (when clear) are placed in < > brackets.

[1] These areas seem to be in Afghanistan.

[2] *Udan-vraj* ?"penning in the waters"? Cf Daśavraja.

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
VII		<*Sindhu* –>	*Paruṣṇī* –> 7.18.9	*Yamunā* 7.33.3 > 7.18.19 *Sarasvatī* the 7th 7.36.6 *Sarasvatī*, from the Mountains to the sea 7.95.2 *Sarasvatī* 7.96.1		
VIII			E,W,N,S 8.4.1, 8.10.5			
		great *Sindhu* 8.12.3	Rivers, Mountains, Sea 8.6.28-29 *Svarṇara*?, *Śāryaṇāvant* 8.6.39 *Śāryaṇāvant*, *Ārjīka* *(pastyavant)* 8.7.29			
	Trikakudra?[3] 8.13.18					
	Sarasvatī 8.21.17-18 in Afghanistan	Ford of the *Suvāstu*, 8.19.37 *Sindhu* 8.20.24-25 *Asiknī*, *Mountains* 8.20.25				
	Gomatī 8.24.30	*Sindhu* 8.25.14 This white flowing *Sindhu* 8.26.18				
		great *Pastyā*[4] 8.27.5				
		Mountains, *Rivers* 8.31.10 *Snow* 8.32.26				
	Camels 8.46.21, 31 *mathra* horses 8.46.23 wool, sheep, dogs 8.56.37	*Mountains*, *Sea*? 8.38.13 *Streams*, and their confluence 8.41.2				
		7 *Streams* 8.54.4	*Śāryaṇāvant*, *Suṣoma*, & *Ārjīkīya*\ 8.64.11 *Svarṇara*? 8.65.2			

[3]Cf the three mountain peaks of Kashmir (Nṇlamatu-Pur. 178): *Brahma-viṣṇu-mahīśvara-śikhara*.
[4]Cf 9.65.23 *madhye pastyānām*.

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
VIII (Āṅgirasa part:)		*Mountains & Dasyu* 8.70.11 *Rasā* 8.72.13 *Paruṣṇī* 8.74.15				
		Mountains 8.88.3; 8.94.12				< *Yavyā* 8.98.8 > <*Aṃśumatī* 8.96.13 >
IX		*Suyamā* 9.81.4? *Rasā* 9.41.6	*Śāryaṇāvant* 9.65.22			*Pastyās* 9.65.23 *Pastyāvat* 9.97.18
I	*Narmiṇī* ? 1.149.3	*Rasā* 1.112.12	*Śāryaṇāvant* 1.84.14			*Śiphā* 1.104.3 *Añjasī*, *Kuliśī* *Vīrapatnī* 1.104.4
X	*Sarayu*, *Sindhu* *Sarasvatī* 10.64.9	(*Mūjavant*) 10.34	*Śāryaṇāvant* 10.35.2		*Gaṅgā* 10.75	

10.75: River hymn of Sindhukṣit Praiyamedha (see text for discussion; cf. 5.53.9)

Appendix B: Geographical and Historical Data of the Rgveda Combined

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
II	*Sarasvatī?* 2.41.6	ĀYU clans 2.2.4, 2.20.4 5 PEOPLES 2.2.10				
	Śambara, living in the mountains was killed in the 40th year 2.12.11	DASYU was left behind on the left 2.11.18				
		7 *Streams* 2.12.12				
	Nārmara to kill Pṛksa, Dāsaveśa at *Ūrjayantī* 2.13.8	Turvīti, Vayya cross streams 2.13.12				Dabhīti kills DASYUS 2.13.9 & was abducted 2.15.4 Dṛbhīka killed 2.14.3
	Atithigva, Kutsa, Āyu defeated 2.14.7					
	Varcin's 1000 men and Śambara's 100 forts destroyed 2.14.6	*Sindhu* crossed 2.15.6				
	TRIKAKUDRA people? 2.15.1					
	Divodāsa destroys Śambara's 99 forts 2.19.6					
	Dāsa Arśasāna[1] killed 2.20.7					
	DASYU, "BLACKS"' forts destroyed; Land & water for Manu 2.20.7					
	Uśij[2] crosses waters 2.21.5	KRIVI defeated 2.22.2 Śandika killed 2.30.8; riding 2.32.3 Sons of BHARATA 2.36.2				

[1] The name looks Iranian : **ṛśa-sāna-*.

[2] Cf Iranian Uśij-; Auśija in other books.

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
III			–> *Śutudrī, Vipāś* 3.33.1	*Āpayā, Dṛṣadvatī* *Sarasvatī* 3.23.4		
			BHARATA cross the *Vipāś* 3.33.9; 3.53.9	Sudās: Enemies in the N, W, E but KĪKATA in the South: Pramaganda, Naicaśākha 3.53.11.-14.		
			FIVE PEOPLES 3.37.9, 3.53.16	< Devaśravas, Devavāta 3.23.2 = BHARATA 3.53 >		
IV	*Gomatīs* 4.21 Vām.	*Rasā* + *Sindhu* 4.44.3				*Kusavā* 4.18.8
	Śṛñjaya Daivavāta 4.15.4		*Vibalī* 4.30.12. Vām.			Pastyā 4.55.3
		7 *Streams* 4.28.1	*Vipāś* 4.30.11 Vām.			
	Somaka Sāhadevya 4.15.7-10		Pāstya 4.21.6			
	Ṛjiśvan, the son of Vidathin overcame Pipru Mṛgaya; 50,000 blacks killed 4.16.13		BHĀRATA Agni 4.25.4			
	Turvīti, Vayya cross *streams* 4.19.6					
	99 forts destroyed for Atithigva 4.26					
	Dāsa Śambara, son of Kulitara killed on MOUNTAIN 4.30.14 Dāsa Varcin's 1000s of men killed 4.30.15	YADU, TURVAŚA cross rivers 4.30.17				
	The ĀRYA Arna & Citraratha killed on 'other side' of *Sarayū* 4.30.18		Trasadasyu of the PŪRU 4.38.1 ĀYU 4.38.4; FIVE PEOPLES 4.38.10			30,000 DĀSA killed by Dabhīti 4.30.21
	Stone forts destroyed by Divodāsa 4.30.20		Trasadasyu 'ardhadeva' Daurgaha,[3] Purukutsa 4.43.8-9			

[3] Cf Schmidt (1992), but cf 8.65.12: his grandsons.

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
V	*Anitabhā, Sarayu* *Krumu* 5.53 .9 Śyāv.	*Rasā, Kubhā,* *Sindhu* 5.53 .9 Śyāv.	*Paruṣṇī* 5.52.9 9 Śyāv.	*Yamunā* 5.52.9 Śyāvāśva		
	< *Gomatīs* 5.61.9 Śyāvāśva Ātreya >		BHARATA 5.11.1, 5.54.14 PŪRU 5.17.1			
			< Tryaruna, son of Trivṛṣan 5.27.1; descendant of Trasadasyu? 5.27.3 >			
			< Aśvamedha 5.27.4 >			
		Trasadasyu Paurukutsa, Gairiksita 5.33.8	Rnamcaya of the RUŚAMA 5.30.12-15			
		3-5 PEOPLES 5.35.2 5 PEOPLES 5.4.5; 5.86.2	ANU 5.31.4 YADU, TURVAŚA cross rivers 5.31.8			
VI	Bhārata Agni: Divodāsa 6.16.9	5 PEOPLES & ĀYU, Kutsa, Atithigva 6.6.11			*Gaṅgā* 6.45.31	Śamyu Bārh.
	DĀSA Namuci killed for Nāmī Sāpya 6.20.6	*Rivers* to the sea 6.17.12, 30.4				
	PŪRU, Purukutsa; DĀSA autumnal forts destroyed 6.20.10 Atithigva 6.26.3	*Mountains, Plains* 6.24.8				Dabhīti 6.20.13
	DĀSA Śambara killed on mountain 6.26.5 Śṛñjaya defeats TURVAŚA 6.27.7 130 VṚCĪVATS killed by Daivavāta on the *Yavyāvatī* 6.27.6-7 Abhyāvartin Cāyamāna (PĀRTHAVA) defeats the Vāraśikha of the VṚCĪVATS on *Hariyūpīyā* 6.27.5					Cumuri killed for Dabhīti 6.26.
	Forts of Śambara destroyed for Divodāsa, with Bharadvāja 6.31.4					

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
VI		DĀSA and ĀRYA enemies 6.33.3				
	TURVAŚA and YADU brought from far away 6.45.1 NAHUṢA tribes & FIVE PEOPLES 6.46.7				Bṛbu high above PAṆIS on the *Gaṅgā* (*tṛca* verses) 6.45.31	
	< pathless, narrow country; DĀSA Śambara & Varcin[4] killed at *Udavraja* 6.47.21 >	Tṛkṣi, PŪRU, DRUHYU 6.46.8 Vadhryaśva Daivodāsa 6.61.1 Bṛsaya 6.61.3		*Sarasvatī* and 7 sisters 6.61.10		
	< Prastoka/Divodāsa Atith. Pāyu Ātharvaṇa honoured by Aśvattha; ŚṚÑJAYAS and Bharadvāja 6.47.22-25 by Garga Bh.>	Puraya, Sumīlha, Peruka, Śaṇḍa (!) as sposors of ritual 6.63.9 *kīstā* 6.67.10; cf. 1.127.7[5]				
VII		<*Sindhu* --> < Vasistha[6] 7.33.9 >	*Paruṣṇī* 7.18.9 --> 'Black' tribes flee fightless before Agni & PŪRU, who break forts 7.5.3	*Mānuṣa* --> < Dāśarājña battle 7.33.3 >	*Yamunā* 7.18.19, 7.33.3 < Bheda 7.18.18, 7.33.3	
			BHARATA defeats PŪRU 7.8.4 W-E-S-N: FIVE PEOPLES 7.15.2		Tṛtsu on the *Yamunā* 7.18.19	
		TURVAŚA, YADU to be killed for Atithigva 7.19.8	Sudās, Trasadasyu Paurukutsa, PŪRU 7.19.3	*Sarasvatī* as the 7th river 7.33.6		
		< BHARATA crosses the *Sindhu*, kills Bheda 7.33 > < BHARATA Tṛtsu and Vasiṣṭha 7.33.5-6 >	Atrin despised 7.104.5	Only *Sarasvatī* from *Mountains* to the sea 7.95.2 PŪRU on *Sarasvatī*? 7.96.2	Tṛtsu: their dress and hairstyle 7.83.4,8	

4 Cf. Vṛcī-vat; like Mūja-vat.

5 But *śīṣṭa* 8.53.2. See discussion in text about mispronunciation of local names.

6 Vasiṣṭha vs. Vahiśta: 7.33.9: Yama = 1st man (cf. 1.83.3 Gotama Rāh./ Uś. Kāvya).

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
VIII[7]	Bhṛgu, Praskaṇva 8.3.9	YADU, Medhyātithi 8.1.30-31				Vibhindu 8.2.41
		Bhṛgu, Kaṇva 8.3.16				
		RUŚAMA 8.3.12, 4.2	*Svarṇara, Śāryaṇāvant* 8.6.38			
		E,W,N,S & ANU, TURVAŚA 8.4.1				
	Kasu, CEDI[8]	TURVAŚA, YADU 8.4.7				
	Camels 8.5.37-39	TURVAŚA, Kuruṅga 8.4.19				
		Rivers, Mountains, Sea 8.6.28-29				
	Tirindra, PARŚU/Parśu, YADU, camels 8.6.46-48		*Svarṇara?, Śāryaṇāvant* 8.6.38			
			TURVAŚA, YADU, Kaṇva 8.7.18			
		Great *Sindhu* 8.12.3	Ukṣno Randhra, Uśanas 8.7.26			
		Arśasāna 8.12.9	*Śāryaṇāvant, Ārjīka (pastyavant)* 8.7.29			
		Trikakudra? 8.13.18				
		Prayiyu, Vayiyu on ford of the *Suvāstu* 8.19.37	FIVE PEOPLES 8.9.2			
			Atharvan 8.9.7			
			TURVAŚA, YADU, Kaṇva 8.9.14			
			E,W: with DRUHYU, ANU			
		Sindhu 8.20.24-25	TURVAŚA, YADU 8.10.5			
		Asiknī, MOUNTAINS 8.20.25		Citra on *Sarasvatī* 8.21.17-18		
	Citra on *Sarasvatī* in Irān? 8.21.17-18	KRIVI 8.20.24; 8.22.22				
			Trasadasyu Paurukutsa 8.19.36			
	PAKTHA (?) 8.22.10		Tṛkṣi Trāsadasyava 8.22.7			
	Adhrigu, Babhru 8.22.10	Varo (!) Susāman 8.23.28, 24.28				
		Vyaśva, Nārya 8.24.29				
		Vaiyaśva or Vyaśva Āṅgirasa 8.24.28				
		Sindhu 8.25.14, 8.26.18				
		Ukṣanyāyana, harāyana, Susāman 8.25.22		Great *Pastyā*[9] 8.27.5		

[7] From book 8, especially, it was not possible to list every person or chief mentioned.
[8] The Cedi later on settle south of the *Gaṅgā*; see Witzel 1987.
[9] Cf 9.65.23 *Madhye pastyānām*.

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
VIII		*Mountains, Rivers* 8.31.10		W, N, S, E 8.28.3		
		Sṛbinda, Anarśani, Pipru; DĀSA Ahīśu 8.32.2 *Snow*, Arbuda 8.32.3, 6	5 PEOPLES 8.32.22			
	Kanīta's son Pṛthuśravas, Camels 8.46.21-24	Medhyātithi 8.33.4 Parāvata 8.34.18 *Mountains, Sea?* 8.38.13 Trasadasyu, Śyāvāśva, Atri 8.36.7, 37.7				
	Aratva Aksa, NAHUṢA 8.46.27	7 (!) TRIBES 8.39.8 7 *Streams*: at their confluence is the poet Nābhāka 8.41.2				
	ŚVITNA, camels 8.46.31 *mathra* horses 8.46.23 wool, sheep, dogs 8.56.3	TURVAŚA, YADU 8.45.27 Dāsa Balbūtha Taruksa 8.46.32				
		VIII (Valakhilya 8.49-59)				
		Medhyātithi, Nipātithi 8.49.9				
		Trasadasyu, Kanva 8.49.10 PAKTHA, Daśavraja, Gośarya Ṛjiśvan 8.49.10 Daśavraja, Gośarya 8.50.9				
		Medhyātithi, Nīpātithi, etc. Parsadvāṇa, Praskanva Dasyave Vṛka 8.51.1-2 KRIVI defeated 8.51.8 RUŚAMA Paviru 8.51.9 Śīṣṭa 8.53.4 7 *Rivers* 8.54.4				
		Dasyave Vṛka 8.55.1 Pūtakratu, father of Dasyave Vṛka 8.56.1-2 Kṛśa 8.59.3				

Book	West	Northwest	Panjab	Kurukṣetra	East	Unknown
VIII		Susāman 8.60.18				
		FIVE PEOPLES 8.63.7				
		PŪRU 8.64.10				
			Śāryaṇāvant; Suṣoma, *Ārjīkīya* 8.64.11			
		E, W, N, S 8.65.1 Durgaha's grandsons 8.65.12				
		VIII 67-103 (Āṅgirasa part:)				
		Aśvamedha 8.68.15-16 Pūtakratu, Atithigva Indrota 8.68.17				
		Mountains & Dasyu 8.70.11 *Rasā* 8.72.13 ANU 8.74.4; *Paruṣṇī* 8.74.14				
		Emuṣa myth 8.77.10				< *Aṃśumatī*, Drapsa & Kṛṣṇa 8.96.13 >
		Mountains 8.88.3; Gotama 8.88.4 *Mountains* 8.94.12 PARĀVĀTA, Śarabha 8.100.6				<*Yavyā* 8.98.8 >
IX		*Rasā* 9.41.6		*Suyamā* *Śāryaṇāvant* 9.65.22, 9.113.1		*Pastyās* *Pastyāvat*
I	*Narmiṇī* ? Dīrghatamas Aucy. 1.149.3	*Rasā* 1.112.12		*Śāryaṇāvant* 1.84.14		*Añjasī*, *Kuliśā* *Vīrapatnī* 1.104.4 *Śiphā* 1.104.3
X	*Sarayu, Sindhu, Sarasvatī* 10.64.9 Pragātha K.	(*Mūjavant*) 10.34.2 Kavaśa Ailūṣa 10.33.6	Kuruśravaṇa (descendant of Trasadasyu) 10.33.4	*Śāryaṇāvant* UŚĪNARA 10.59.10 Bandhu, etc. 10.60		
		Rasā, Kubhā, Gomatī 10.75			*Gaṅgā* 10.75	

Asko Parpola

15. The problem of the Aryans and the Soma: Textual-linguistic and archaeological evidence

Some years ago I tried to match the philological and archaeological data on the coming of the Aryans to Iran and India (Parpola 1988; see also Parpola 1993a, Parpola 1993b, Parpola 1994: 142-159). The present paper (completely rewritten long after the Toronto symposium) continues my efforts to gain a holistic understanding of this complex problem. I have modified my earlier reconstructions in the light of recent archaeological research and discussion, which has clarified several crucial issues, particularly the chronology of the Late Bronze Age in Central Asia. One specific new archaeological correlation that I presented at the Toronto symposium is the comparison of bird-rimmed drinking vessels from Bactria and Mycenae (figures 1 and 2).

Ārya is the designation applied to themselves by many (but, *pace* Schmitt not necessarily all) of the early speakers of the oldest dialects and languages in the Aryan or Indo-Iranian branch of the Indo-European language family (Schmitt 1989a: 1). Any attempt to identify prehistoric "Aryan" speakers archaeologically has to take linguistic and textual evidence as its starting point - pots and pans alone cannot tell what languages their owners spoke. The earliest and most relevant pieces of textual-linguistic evidence relating to the prehistory of Aryan speakers come from widely dispersed contexts: (I) Aryan loanwords in the Finno-Ugric languages spoken in the forest zone of northern Europe; (II) proper names of rulers and other Aryan words (many of them associated with horse-training) from the Mitanni documents of Syria of c.1500-1300 B.C.; and (III) the Ṛgveda, a large collection of hymns composed in the northern Indus Valley, most of them probably in the latter half of the 2nd millenium B.C.. In addition, there are (IV) the earliest Iranian sources which will be touched on only briefly[1]: the Avesta, especially its oldest parts, the Gathas of Zarathustra, composed in northern or eastern Iran or in southern Central Asia or Bactria, some time between the 15th and 6th centuries B.C.; (V) inscriptions of the Achaemenid rulers

[1] For a more detailed exposition consult the chapter by Skjaervø in the present volume.

of Persia (c. 520-337 B.C.); and (VI) the testimony of Herodotus and other classical authors on Scythians and related Iranian speaking tribes occupying the North Pontic steppes in the 7th-3rd centuries B.C.. Each of these source groups has its own archaeological implications, which I shall try to spell out and fit together in the following, more or less in the above order.

I

The horse, wheeled vehicles and Proto-Indo-European culture

The "Aryan problem" is, of course, inextricably linked to the even more complex "Indo-European problem". Both are real problems, in spite of attempts to prove the contrary by anthropologists unfamiliar with historical linguistics (e.g. Leach 1990). In this paper, however, I cannot discuss either the methodology or the Indo-European problem in any detail; on those questions the reader may refer to Mallory's, on the whole, excellent introduction and assessment (Mallory 1989; for a critique see Lehmann 1990). It may be useful, however, to repeat some basic points (cf Parpola 1988: 199f., with references).

The horse plays a crucial role in the identification of Proto-Indo-European and early Aryan speakers. Old Irish *ech*, Lat. *equus*, Old Eng. *eoh*, Goth. *aíhwa-*, Tocharian *yakwe* and Proto-Aryan **áćva-* are all derived from PIE *(*H_1*)*éḱwos* "horse" (Lithuanian further has *ešva* , *ašva* "mare"). This word is thought to date from the early phase of Proto-Indo-European, because it is almost certainly related to the adjective (*H_1*)*āḱus* "swift" (whence Greek *ōkús* and Sanskrit *āśú-*) and because these two words are linked by derivational processes no longer operative in the late phase of Proto-Indo-European. The Proto-Aryan word for "horse" **áćva-* (Vedic *aśva*, Proto-Iranian **atsva-*, whence Avestan *aspa-*, Old Persian *asa-*; cf Schmitt 1989b: 27) is thus clearly inherited from PIE. It has undergone the following sound changes (1) **ḱ* > *ć* > (> * *ś*), assumed to have taken place dialectically in the late Satəm phase of the Indo-European period and, in addition, (2) **e* > * *a* and (3) **o* > *a*, which are specific to the Aryan branch.

The history of the word "horse" shows that the Proto-Indo-European speakers had long lived in an area where the horse was native and/or domesticated (Mallory 1989: 161-163). The earliest solid archaeological evidence for the domestication of the horse comes from Dereivka on the Dniepr river, a site belonging to the Ukrainian Srednij Stog culture, which flourished c. 4200-3500 B.C., and which may represent an early phase of the Proto-Indo-European culture (Mallory 1989: 162, 197-210).

Various terms associated with the wheeled vehicle represent the most recent technological concept solidly reconstructed for Proto-Indo-European on the basis of most of the Indo-European languages. They are, therefore, tempor-

ally of the greatest diagnostic importance for the maintenance of Proto-Indo-European linguistic unity (Gimbutas 1956: 79; Mallory 1989: 163). Archaeological evidence suggests a rapid dispersal of wheeled vehicles from the Near East through Transcaucasia and the Pontic steppe to central and northwestern Europe within a few centuries in the late 4th millennium B.C. (Piggott 1983). During the Pit Grave ("Yamnaya") culture (c. 3500-2800 B.C.), which continued the cultures related to Srednij Stog, full-scale pastoral technology - including the domesticated horse, wheeled vehicles, stockbreeding and limited horticulture - spread from the Ukraine eastward over the vast grasslands of the Pontic steppes. Around 3000 B.C., traits related to the Pit Grave culture spread in practically every direction from the steppes. For these, and other reasons the Pit Grave culture is widely thought to represent the the late phase of the Proto-Indo-European linguistic community.

Aryan loanwords in the Finno-Ugric languages and cultures of the North Pontic steppes

The distribution and history of the Finno-Ugric languages suggests that Proto-Finno-Ugric was spoken by hunters and fishermen of northeastern Europe, whose Neolithic cultures were distinguished by the so-called Comb-and-Pit-Marked Pottery. Many of the Indo-European loanwords in the Finno-Ugric languages can be dated by linguistic criteria and they have been found to cover a long chronological continuum, dating right back to the early stages of Proto-Indo-European. The source of these Indo-European loanwords must have been in the neighbouring cultures to the south, on the North Pontic steppes. Archaeological evidence for contact between these different cultural traditions in the Aeneolithic period (c. 4500-3500 B.C.) is provided by the Samara culture of the middle Volga forest-steppe, which was related to the Srednij Stog (Mallory 1989: 206-208). In the following Early Bronze Age, the Pit Grave culture (c. 3500-2800 B.C.) expanded northwards into the southernmost parts of the former Comb-and-Pit-Marked Pottery area.

A number of early Indo-European loanwords in Finno-Ugric have, on the basis of phonological criteria, long been identified as belonging to the Aryan branch. A case in point is Proto-Finno-Ugric *śata-* "hundred", which corresponds precisely to Sanskrit *śata-* but differs from both PIE (* *(d)kṃtóm*) and from its daughter branches (cf. Latin *centum*, Greek *hekatón*, Lithuanian *šim̃tas*, etc.). But some Indo-European loanwords borrowed by early Finno-Ugric (e.g. Finnish *kehrä* "spindle") can be recognised as Aryan only from their distribution within the Indo-European family, where the etyma in question are found exclusively within the Aryan branch (Sanskrit *cattra*, etc.) while their phonetic shape still exhibits the Proto-Indo-European stage of development (* *ket^{s}tro-*). This means that these words have been borrowed from the Indo-European dia-

lect which later became Aryan *before* the sound changes characteristic of the latter branch had developed. On the other hand, a number of the other early loanwords in the Finno-Ugric langauges exhibit the phonological characteristics of Iranian, posterior to the Proto-Aryan stage. At least the oldest Aryan loanwords are unanimously considered older than the Baltic, Germanic and Slavic loanwords in the Finno-Ugric languages.[2]

The evidence supplied by these loanwords can be compared to the geographical clues supplied by the shared dialectal features which connect the Aryan branch with Baltic and Slavic langauges on the one hand and with Armenian and Greek on the other. It appears that not only was Proto-Indo-European spoken on the steppes of the Ukraine and southern Russia, but that this was the very region where the Aryan branch came into being. In other words, the Proto-Aryan speakers seem to have remained in their old Proto-Indo-European homeland *after* the speakers of the other Indo-European dialects had left it, and they continued to stay there up to the time that a branch of Proto-Aryan developed into what is now called "Iranian".

This hypothesis fits the archaeological evidence of the Pontic-Caspian steppes well, exhibiting an unbroken continuity of very similar cultures from the Early Bronze Age to the Iron Age as follows: Pit Grave (*Yamnaya*) culture c. 3500-2800 B.C. -> Hut Grave and Catacomb Grave culture (Gimbutas 1956: 74-89) c. 2800-2000 B.C. -> Timber Grave and Andronovo cultures, the former in the Volga steppes in 2000-800 B.C. and the latter in the southern Urals, Kazakhstan, and southern Siberia in 1800-900 B.C. -> Early Historic cultures of the Iranian-speaking Scythians (Sakas) from the 8th century B.C..

If the Pit Grave culture was still Proto-Indo-European, the Hut Grave and Catacomb Grave culture was probably Proto-Aryan. Afterwards, at the beginning of the second millennium B.C., a major eastward expansion took place, which led to the splitting of the tradition into two strands. I would like to equate this archaeological pattern with the division of the Indo-Iranian languages into the principal "Iranian" and "Indo-Aryan" branches; according to Burrow (1973) this linguistic split should have taken place by c. 2000 B.C., which neatly agrees with the model being proposed here. We must not be prejudiced by the labels given to these branches on the basis of the distribution of their historical representatives. The Finno-Ugric loanwords, connections between Proto-Slavic and Proto-Iranian, and the Greek testimonies concerning the Scythians all suggest that the western branch, producing the Timber Grave culture which stayed in the North Pontic area, represents "Proto-Iranian" speakers. The eastern, or Andronovo, branch, which by 1700-1500 B.C. had expanded as far south as southern Turkmenistan, northern Afghanistan, Tajikistan, Uzbekistan and Kyr-

[2] On the Indo-European and early Indo-Iranian loanwords in Finno-Ugric, see - in addition to references in Parpola 1988: 201 - especially Koivulehto 1991 and 1993.

gyzstan, is likely to represent "Proto-Indo-Aryan" speakers, since this was the branch that first reached Iran and South Asia. This reconstruction differs from the traditional view represented, for instance, by Rüdiger Schmitt (1989b: 25) who, without taking the archaeological cultures into consideration, is inclined to place the Indo-Iranian (i.e. Proto-Aryan) homeland in the regions here suggested as being the Proto-Indo-Aryan homeland: the steppe zone of Iran and Central Asia comprising Sogdia, Khoresmia, Bactria and regions further to the north.

The need for metals, which enabled the manufacture of hard bronze weapons, induced part of the Early Timber Grave people (Potapovka complex of the Volga-Don region) to move eastwards to the rich ore deposits in the southern Urals and northern and central Kazakhstan. Soon the culture of these migrants developed into the Early Andronovo culture of the Petrovka complex (Novyj Kumak horizon, c. 1800-1600 B.C.). In the Urals, the Early Andronovo people built strongholds in the vicinity of ore deposits. The layout of the strongholds is square with an inner ring, or round with an inner square; best known is the recently excavated citadel of Arkaim with two encircling walls, whose plan resembles that of the roughly contemporaneous temple-fort at Dashly-3 in Bactria, to be discussed later. Cemeteries at several sites of the same Petrovska complex (Sintashta I, Ulyubai, Berlik and Satan) have produced the earliest known examples of light-wheeled horse-drawn chariots (Kuz'mina 1994). They come from large barrows where warriors were buried with their whole weaponry. The chariot has a rectangular body measuring 120*60-70 cm, an axle 140 cm wide and two wheels 90-120 cm in diametre, probably with 10-12 spokes. The horses of the chariot team were interred with bone cheek-pieces of the same type as found in Shaft Grave IV at Mycenae (traditionally dated to c. 1550 B.C.). One sherd with a "caterpillar" ornament typical of the early Petrovka variant of Andronovo has been found in room 20 of Togolok-1 in Margiana in southern Turkmenistan (P'yankova 1993: 115 and figure 5.2).

"Andronovo culture" is a blanket term for a large number of related cultures covering a vast area (some 3000 km across) and a long period of time (Kuz'mina 1985). In addition to the earliest type, Petrovka (Petrovsk in Kuz'mina 1985), we are interested in the succeeding Alakul' (especially the Alexeev variety) and Fëdorov variants which spread from the Urals through Kazakhstan to southern Siberia and Kyrgyzstan, and up to the Pamir and Tian Shan mountains; they are not as rich as the Petrovka type, but possessed bronze metallurgy and pastoral technology, including the use of both horses and camels. In the Fëdorov type, both inhumation and cremation were practised; the latter was dominant in the Urals and central Kazakhstan, while both modes were used in northern and eastern Kazakhstan, Kyrgyzstan and southern Siberia (Kuz'mina 1985: 37-41). The Alakul' and Fëdorov types are relevant to the following discussion because they are attested to in southern Central Asia (Vinogradova and Kuz'mina 1986; Francfort 1989,I: 424-430): in an older and "purer" form in

southern Turkmenistan, Margiana and Bactria (Sarianidi 1975; Francfort 1989,I: 426f.; P'yankova 1993: 114-118), in the early phase of the Kajrak Kum culture of Ferghana (in Uzbekistan and Kyrgyzstan), and in a mixed form in the later phases of the Kajrak Kum culture, in the somewhat similar Tazabag"yab culture of Khoresmia (along the lower course of the Amu Darya, c. 1700-900 B.C.), and in the Vakhsh-Bishkent cultures of northern Bactria (c. 1700-1500 B.C.). The Tazabag"yab culture, partly continuing the traditions of the earlier local Neolithic Kel'teminar culture, was characterised by limited irrigation agriculture and pastoral nomadism (sheep, cattle and horse); the necropolis of Kokcha 3 has warrior tombs (Itina 1961, 1977; Francfort 1989,I: 424ff.).

II

The Indo-Aryan affinity of the Mitanni Aryans

The earliest directly preserved written evidence of an Aryan language is found in documents relating to the kingdom of Mitanni in northern Syria, dated c. 1500-1300 B.C.. While a majority of the Mitanni population spoke the local Hurrian language, members of the ruling aristocracy bore Aryan names and invoked Aryan gods as oath deities in their treaties. A Hittite text on horse training and chariotry, written by a Mitannian called Kikkuli, likewise employs a number of technical terms which have an Aryan etymology (Mayrhofer 1966, 1974).

It is now generally agreed that Mitanni Aryan is related to the Indo-Aryan, rather than the Iranian or Nūristānī, sub-branch of (Aryan) Indo-Iranian. Among the deities of the Mitanni oath of 1380 B.C. are Mitra-and-Varuṇa, Indra and the two Nāsatyas. As Thieme (1960) has shown, all these gods are invoked as protectors of treaties in the Ṛgveda, and in one stanza (RV 10.125.1bc) are mentioned together and in the same order. Only Mitra, whose name originally means "contract, treaty", is common to both the Vedic (Indo-Aryan) and the Zoroastrian (Iranian) religion, while Varuṇa is known from the Veda alone. Indra, the chief deity of the Vedic pantheon, is mentioned in the Avesta only twice (Vd. 10.9 and 19.43), both times as a bad "demon" together with the likewise demonic Saurva (the Vedic god Śarva) and Nāŋhaiθya (Vedic Nāsatya). The Avestan word for "demon" *daēva* goes back to * *daiva*, the earlier form of the Vedic word for "god" *deva*, while the Avestan (and Proto-Iranian) word for "god" is *baga* (related to Old Slavic *bogŭ* "god").

Proto-Indo-Aryan, which already clearly diverged from Proto-Iranian, must have existed c. 1600 B.C.; as already mentioned, Burrow (1973) estimated that the separation of these two branches of Aryan began around 2000 B.C. at the latest. Burrow assumed that the Mitanni Aryans in Syria and the Indo-Aryans in South Asia both came from a Proto-Indo-Aryan "homeland", which

he placed somewhere in the middle of these two peripheral areas, either in southern Central Asia or in the (north)eastern parts of the Iranian plateau. After the Iranians had come to these parts from the northern steppes, Zarathustra instituted religious reforms in eastern Iran, condemning the (Proto-Indo-Aryan) cult of the *daēvas* (Yašt 1389-90) which had continued until his times. Burrow points to textual evidence suggesting that worshippers of the *daēvas* seem to have then existed even in Māzandarān, between the Caspian Sea and the Elburz mountains, on the route to Mitanni.

The Mitanni Aryans and Early West Iranian Grey Ware

The Mitanni empire was predominantly Hurrian speaking. The ruling elite of Aryan nobles constituted a minority of external origin. Ghirshman (1977) thought that the Mitanni Aryans had come to Syria from the southeast corner of the Caspian Sea. One of his main arguments was the similarity between the dark luxury ceramics of the Mitanni palaces and the Gurgan Grey Ware of the Hissar IIIc horizon, now dated to c. 1900-1700 B.C.. This similarity is not very close, however, and Ghirshman's derivation has not been generally accepted. Another leading authority on early Iran has linked the Mitanni Aryans with the Early West Iranian Grey Ware that suddenly appears in great quantities all along the Elburz mountains, in Azerbaijan and around Lake Urmia c. 1500 B.C. (Young 1985). As he points out, this ware represents a major break in the archaeological record of Iran, and hence appears to signal the arrival of new people. The latter cannot yet be the Medes or the Persians, who are first mentioned as being in the Zagros area in Neo-Assyrian textual sources c. 850 B.C.. Their coming is linked with the appearance of Late West Iranian Buff Ware, an entirely new pottery in every respect, which is clearly ancestral to Achaemenid ceramics and appears to be derived from the buff wares that appear in the Gurgan region around the 11th century B.C.. The Mitanni Aryans would have followed the same route, for Young is inclined to see the Early West Iranian Grey Ware as an evolved form of the earlier Gurgan Grey Ware, which is dated at Tureng Tepe as late as c.1700-1600 B.C.; in addition, there are linkages in metallurgy.

Indo-Aryans and the royal cemetery of Marlik in northern Iran

One important Early West Iranian Grey Ware site in Māzandarān (once occupied by *daēva* worshippers, i.e. Proto-Indo-Aryans) is Marlik (Negahban 1964a, 1964b); its rich cemetery has produced many weapons, models of battle-chariots, horse burials, and prestige objects imported from Syria and Palestine, as well as seals of the Mitanni type. All these features suggest Marlik's connection with the Mitanni Aryans. In addition, Kurochkin (1994) has pointed out some significant characteristics:

The Indo-Iranian religion characteristically combines fire cult with the ritual drinking of *soma*. A fire altar and a "teapot" for ritual libations were found in the funeral shrine at Marlik (Negahban 1964a). The rich tombs of Marlik contained mortars, an open spout and pestles, apparently used for pressing out juice from plants, as well as models of battle chariots. This combination of rather unusual grave goods is in striking agreement with Vedic funerary texts. These namely prescribe a mortar (*ulūkhala*) and a pestle (*musala*) as well as a (model) wagon (*śakaṭa*) to be placed at the legs of a deceased Indo-Aryan man who had established sacred fires (Caland 1896: 51).

Kurochkin derives the main elements of the Marlik material culture, including the ritual "teapots" with spouts, from the earlier Bronze Age of NE Iran (represented by Hissar IIIc) and Bactria. One may add that the habit of placing cart models in graves can be traced back to barrows of the Hut Grave and Catacomb Grave period in the North Pontic steppe (Gimbutas 1956: 78; 1965: 207).

Indo-Aryans and the golden bowl of Hasanlu

Hasanlu, near Lake Urmia, is an important site associated with Early West Iranian Grey Ware in the second half of the 2nd millennium B.C.. Kurochkin (1990, 1994) has convincingly argued for an Aryan affinity of the famous golden bowl from Hasanlu V, dated to the Early Iron Age (c. 1500-1000 B.C.). He notes that two pictorial scenes on the Hasanlu bowl show a hero dressed in a peculiar skirt: in one the hero is associated with a bird of prey and in the other he is combatting a three-headed monster. In the Avestan hymn to the Goddess Anāhitā, preserved in the 5th Yašt, the hero Θraētaona is also mentioned twice: first in connection with his battle with the three-headed Aži-Dahāka (Yašt 5.33-34) and secondly when he helps the hero Pāurva by making him fly up to heaven in the form of a bird of prey (Yašt 5.61).

Kurochkin's parallels are from Iranian sources, but I should like to point out that at least the former myth is pre-Iranian, for Θraētaona the son of Āθwya has an exact counterpart in the Ṛgveda, namely Indra's associate Trita Āptya, who slew Viśvarūpa, the three-headed son of Tvaṣṭṛ. The Avestan name of the beast, Aži, corresponds to Vedic *ahi* "snake, dragon", used of Indra's demonic enemy; it also reminds one of the snake or dragon motif so frequently found on the Bronze Age seals of Bactria and Margiana (Pottier 1984; Sarianidi 1986). Moreover, the epithet *dahāka*, which the dragon has in the Avesta, connects this adversary with the Dāsas, against whom the *Āryas* of the Ṛgveda were fighting. The Hasanlu bowl thus seems to reflect Indo-Aryan mythology.

The Gurgan Grey Ware (Tepe Hissar IIIc), the BMAC and the Indo-Aryans

Cuyler Young considers that Early West Iranian Grey Ware (c. 1500-1000 B.C.) evolved from Gurgan Grey Ware (Tepe Hissar IIIc, now dated c. 1900-1700 B.C.) and Kurochkin, too, traces the Marlik tradition back to Gurgan and to the Bactria and Margiana Archaeological Complex (or BMAC, c. 1900-1700 B.C.).

The previously unknown BMAC has been unearthed by Viktor Sarianidi and his Russian colleagues during the past three decades in the oases of the Murghab Delta (Margiana) in southern Turkmenistan and of the Oxus plain (Bactria) in northern Afghanistan. As Hiebert makes plain elsewhere in this volume (Chapter 8), the BMAC represents the direct continuation of the long cultural tradition of the more westerly Kopet Dagh region, which in the late Namazga V period (c. 2200 B.C.) extended to Margiana. In the early 2nd millenium B.C., however, this colony was transformed through its adoption of a new social system. Stratification of society is clearly implied by the abundance of locally produced luxury goods, by monumental architecture including strong fortifications, as well as by the construction and maintenance of an elaborate irrigation system, the economic basis of culture. Hiebert (in the present volume) and Lamberg-Karlovsky (1993; see also Hiebert and Lamberg-Karlovsky 1992) have convincingly argued that the BMAC spread from Margiana to Bactria and then also to Kerman, Seistan and eastern Baluchistan; they explain (pers. comm.) the similarities of the Gurgan sites and Tepe Hissar IIIc in the same way. Hiebert and Lamberg-Karlovsky (1992) are inclined to interpret this intrusive expansion in terms of "state expansion", planned military raids, and the first introduction of the Aryan language into the Iranian plateau.

Ghirshman (1977) had already advanced numerous arguments in favour of an Aryan identification of the Gurgan Grey Ware complex; these arguments must now be understood as covering the BMAC as well. Thus, Ghirshman traced the horsemanship, for which the Mitannians were so famous, back to the Gurgan plain, where a locally made cylinder seal from Tepe Hissar IIIb bears the representation of a horse-drawn chariot. Miniature models of trumpets, made of gold and silver, have been found in the Gurgan area (Tepe Hissar IIIc; Treasure of Asterabad) as well as in Bactria. As Ghirshman pointed out, trumpets were needed for directing chariots in battle, and an Egyptian bas-relief of Ramses III (early 12th century B.C., soon after intensive Egyptian contacts with Mitanni) shows that trumpets were used in training horses. Horse bones have been found in Gurgan (Shah Tepe), but not, so far, in Bactria or Margiana. The horse is represented, however, on several of the ceremonial weapons said to have come from the looted graves of Bactria; here one bronze statuette even shows a horse with a naked ityphallic rider, who is pressing his bent legs backwards beneath the horse, without stirrups (Bothmer 1990: 43: no. 29). The abundance of weapons itself suggests that the ruling elite of the BMAC was actively engaged in warfare.

A most important argument in favour of the hypothesis that this warring elite of the BMAC spoke Proto-Indo-Aryan has emerged from the French excavations on the Kachi plain near the Bolan Pass leading from Baluchistan to Sindh. Burials and cenotaphs which, like their rich grave goods, are typical of the BMAC, have been found at Mehrgarh-7, at Sibri (on their intrusive nature

see Hiebert in this volume). The arrival of immigrants from Bactria coincides with the beginning of the Late Harappan cultural phase, represented by the Jhukar culture in Sindh which predominantly continues the traditions of the Indus Civilisation, but also contains such new elements as seals of Bactrian affinity. The similarity of Bactrian and Gangetic swords, sharing antennae-shaped hilts, suggests that BMAC-related intruders may also have been connected with the later phases of the "Copper Hoard" culture in the northern parts of central and eastern India (Parpola 1988).

A locally made Bactrian cylinder seal known from an impression on a potsherd from Taip-depe in Margiana was divided into two registers by means of a plait. This is a device inaugurated in Syria in the 18th century B.C.. At this time Assyria was trading with Cappadocia and importing tin from the east. The source of this tin may have been in central and northern Afghanistan (Kandahar and Badakshan), whence the Harappans and the Bactrians appear also to have obtained their supplies (Collon 1987: 142f.). On the other hand, from the 18th century B.C. onwards, north Syrian seals show such a typically Central Asian motif as the two-humped Bactrian camel, which is depicted in the BMAC seals several times (cf. Brentjes 1987: 135); camel bones have been identified at Gonur-1 (Meadow 1993: 72-73). There are also a number of other parallels, and not only in glyptics; e.g. the copper mirrors with anthropomorphic handles that have been found in Bactria and Baluchistan go back to Egyptian prototypes via Syria. These cultural contacts between the Syro-Hittite world and the BMAC do not prove that the hypothetical Aryan authors of the BMAC came from the west, as suggested by Sarianidi (1993b, 1994), but rather foreshadow the take-over of power in Syria by the Mitanni Aryans and support their Central Asian origin.

The BMAC and Mycenae

The elite objects of the BMAC comprise a number of silver and gold bowls. At the Toronto symposium I drew attention to a hitherto unnoticed parallelism between the famous "Cup of Nestor" from Mycenae (figure 1) and an electrum cup from the looted graves of Bactria now in the Metropolitan Museum of Art in New York (figure 2). Both are drinking cups and have birds with outspread wings and a long tail (such an eagle or falcon is a typical decorative motif of BMAC artefacts) attached to the rim. Schliemann compared the cup from Mycenae with that of Nestor in Iliad 11, 632-37. This comparison is no longer considered valid, however, not only for chronological reasons, but also because Homer, though he mentions two birds on the rim, describes a different kind of vessel, actually a mixing bowl (as demonstrated, for example, by Wace and Stubbings 1962: 536):

.. and beside them a beauteous cup, that the old man had brought from home, studded with bosses of gold; four were the handles thereof, and about each twain doves were feeding, while below were two supports. Another man could scarce have availed to lift that cup from the table, when it was full, but old Nestor would raise it right easily (transl. Murray 1924,I: 527-529.

"Nestor's cup" is from Shaft Grave circle A (tomb 4) at Mycenae (Wace and Stubbings 1962: 536; Karo 1930), belonging to Late Helladic I, traditionally dated to c. 1550 B.C. but in revised chronology contemporaneous with the BMAC. At this time the Mycenaeans had sea contact with Syria, where the Proto-Indo-Aryan dynasty of Mitanni was soon to rule.

The BMAC and the early Andronovo culture

The BMAC emerged as a direct continuation of previous cultural developments in southern Turkmenistan. Its local origin can be reconciled with the hypothesis of BMAC's Aryan linguistic affinity only by assuming that the dramatic changes in its socio-political structure c. 1800 B.C. resulted from the takeover of power in Margiana by small groups of Aryan-speaking nomads coming from the north. In fact, as noted above, one sherd of handmade "steppe" ceramic typical of the earliest (Petrovka) type Andronovo pottery has been found in the early layers of Togolok-1 in Margiana (P'yankova 1993: 115 and fig. 5.2). The early Andronovo culture was strongly stratified, as shown by the rich tombs of its chiefs, possessed fortifications, horse-drawn chariots and a flourishing metallurgy including weapons of many kinds. All these traits now become prominent in BMAC and distinguish it from the preceding cultural phases. A close analogue for this takeover of power is provided by the Mitanni empire: a small number of Proto-Indo-Aryan speaking and chariot riding warriors superimposed themselves upon the native Hurrian speaking population around 1500 B.C., when the Early West Iranian Grey Ware culture intrusively arrived in the vicinity. The parallel coup d'état in Margiana probably took place fairly peacefully, somewhat in the manner of the Vikings "invited" to become the first kings of the Russians, because no evidence of destruction has been encountered.

III

The Gandhāra Grave culture of Swat (Ghalegay IV period) and the Bishkent and Vaksh cultures of southern Tajikistan

Turning now to the textual evidence on the early Indo-Aryans supplied by the Ṛgveda, and its archaeological implications, we must first observe that the place names mentioned in this collection of hymns relate it to a fairly restricted area in the northern Indus Valley. At the end of the Ṛgvedic period the majority of

people seemed to have lived on the plains of the Panjab, along the Indus and its tributaries, but some of the Ṛgvedic tribes continued to occupy the northern valleys of the Kabul and Swat rivers. These northern areas are generally considered to be the region through which the Ṛgvedic Aryans arrived in the subcontinent.[3]

The intrusive Gandhāra Grave culture of Swat (c. 1700-1400 B.C.), representing the fourth period in the local cultural sequence as defined by the Ghalegay cave, is the first cultural assemblage of Swat to possess the horse; this animal is prominent in the Ṛgveda. At Bīr-koṭ-ghwaṇḍai, for example, the horse is present both in the motifs of painted pottery and osteologically: out of 158 equine bones, 13 have been identified as those of *Equus caballus* (Stacul 1987: 106-109, 137-140). In its area of distribution, the Gandhāra Grave culture largely coincides with that of the Dardic group of Indo-Aryan languages, the only ones to preserve some distinctly Ṛgvedic dialectal variants (in particular the gerund in -*tvī*). Inhumation in graves is the predominant mode of disposal of the dead, but cenotaphs and the cremation ritual also appear for the first time in South Asia: both methods are known from the Ṛgveda.

The spread of the Gandhāra Grave culture to the Punjab in the 16th century B.C., and its concomitant acculturation to the Cemetery H culture which prevailed in the Punjab from Late Harappan times (c. 1900 B.C. onwards) agree with the textual evidence from the Ṛgveda, which speaks of battles on the plains; the mixing with people speaking a different Indo-Aryan language is visible in the intrusion of non-Ṛgvedic dialectal forms of Indo-Aryan and subject matter into the latest books of the Ṛgveda.

One of the principal excavators of the Gandhāra Grave culture has suggested that the pottery of the Ghalegay IV period resembles the BMAC pottery of Dashly in Bactria (Stacul 1987: 122). The similarity appears to be indirect, however: the Dashly ceramics have influenced the pottery of the north Bactrian Vakhsh culture (cf. P'yankova 1986: 74). A large number of scholars, including Kuz'mina (1976: 123-125), Müller-Karpe (1983: 117f.), Chlenova (1984) and Lyonnet (1994) have suggested that the origins of the Gandhāra Grave culture are to be sought in the approximately contemporaneous Bishkent (or Beshkent) and Vakhsh cultures of southern Tajikistan (Mandel'shtam 1968; P'yankova 1989), less than 500 km away. Chlenova and Lyonnet emphasize that the route connecting the Vakhsh and Bishkent cultures with Swat - along the Kabul river - was followed even by later steppe invaders of South Asia, including the Yueh-chi or Kushans around the 1st century B.C. and the Hephtalites or White Huns in the 5th century AD.

The similarities between the Gandhāra Grave culture and the Vakhsh/Bishkent cultures concern not only ceramics but also, and especially, grave forms and burial rituals. The trait of burying deceased males on their right side

[3] See for example the maps in Witzel 1989 (on pages 233 and 242).

and females on their left side connects the Swat culture with the Tulkhar cemetery of the Bishkent culture (Müller-Karpe 1983: 101) and, further, with the closest group of steppe nomads, represented by the Tazabag"yab Andronovo assemblage (at Kokcha 3) in Khoresmia and by the Andronovo in general (Francfort 1989,I: 429). Another important trait connecting the Swat and Bishkent cultures is the burial of couples in the same grave; these comprise cases where both the man and the woman are found intact, as well as cases where the grave has been disturbed from a later burial of the wife in the husband's grave (Müller-Karpe 1983: 118). Müller-Karpe (1983: 101) has pointed out the possibility of relating these paired graves to the Ṛgvedic funeral verse 10.18.8 (cf also AV 18.3.1-2) and the related practice of making the widow lie down on the deceased's right side and then stand up again (Caland 1896: 42f.). In some of the paired graves of Swat one person (of either gender) was cremated while the other was not (Müller-Karpe 1983: 44f., 98).

One recurring feature in the Bishkent graves in particular led Mandel'shtam (1968) to connect them with the Vedic cult of sacred fires: men's graves had square-shaped ritual fireplaces, women's graves round ones. He compared these with the square-shaped *āhavanīya* and the round *gṛhapatya* fireplaces of Vedic ritual, in which the latter represents the domestic hearth. This suggestion is corroborated by the following considerations. The sacred fires are involved not only in the Vedic sacrifices to the gods, but also in funeral ceremonies. When a sacrificer (of either sex, but only married couples can sacrifice) dies, the sacred fires should be taken around the funeral pyre, which is to be kindled with them. This procedure, however, is only valid for the first death in the couple; the other party is not allowed to use the sacred fires, he or she is to be buried with the domestic *gṛhya* fire alone, just as a person who has not established the sacred fires and became a sacrificer (Caland 1896: 36ff., 58f., 92f.; Müller-Karpe 1983: 98f.). The sacred fires of the Vedas are, however, three or more: but as Krick (1982: 232ff., 376f. and *passim*; cf. Parpola 1988: 240) points out, only the *āhavanīya* and the *gṛhapatya* represents the Ṛgvedic tradition, while the half-moon shaped "southern fire" seems to be associated with the Asuras ("demons") and the Yajurveda.

The Bishkent burials (with only the square and round fireplaces) are inhumations. However, Vedic texts also prescribe inhumations for specific individuals like ascetics (Caland 1896: 93ff.). Besides, some Vedic ritual texts (in particular the lost Śāṭyāyana Brāhmaṇa known only from quotations and from Śatapatha Brāhmaṇa 12.5.2.5) mention a virtually obsolete habit which has rightly been considered as a relic of an earlier inhumation ritual: the stomach of the deceased is opened, the entrails are removed, cleaned, filled with clarified butter and replaced, whereupon the opening is closed by sewing it with *darbha* grass (Caland 1896: 14-16, 166; cf. also Müller-Karpe 1983: 100). That this is indeed a Proto-Aryan custom is confirmed by a striking Scythian parallel that seems to

have escaped earlier attention. The frozen tombs of Pazyryk in the Altai (Rudenko 1970) have preserved deceased whose treatment recalls that recorded by Herodotus (4.71):

The burial places of the kings are in the land of the Gerrhi, which is the end of the navigation of the Borysthenes (Dniepr). There, whenever their king has died, the Scythians dig a great four-cornered pit in the ground; when this is ready, they take up the dead man - his body enclosed in wax, his belly cut open and cleansed and filled with cut marsh-plants and frankincense, and parsley and anise seed, and sewn up again - and carry him on a waggon... (transl. Godley 1938,2: 269).

It can be added that according to the Vedic texts, too, the deceased is taken to the burial ground in a waggon (*śakaṭam* or *anas*, cf. Caland 1896: 20). The strangled concubine and the vast mound above the grave of the Scythian king (Herodotus 4.71-72) also have parallels in the Vedic practice with the widow (see above) and in the Vedic funeral mound (Caland 1896: 156ff.).

Cremation evidenced at Swat was also practised by the Andronovo tribes of the Fëdorov type (P'yankova 1982: 44; Kuz'mina 1985: 37), and its presence in the Vakhsh culture is suggested by the great number of cenotaphs with anthropomorphic figurines of unburnt clay (which are absent in the Bishkent culture - Lyonnet 1994). Anthropomorphic clay figurines are also known from the Swat graves (Müller-Karpe 1983: 103-105).

The Bishkent and Vakhsh Cultures and the BMAC

The Bishkent and Vakhsh cultures have long been seen as emerging from the fusion of nomads coming from the northern steppes and of BMAC-related agriculturalists coming from the the southwest. Vinogradova (1993) has modern ethnographic parallels and suggests that both parties acted as middlemen in the intensive exchange of goods (agricultural products and ceramics from the south and copper and tin ingots from the north). The anthropological type of the Bishkent culture, though also Mediterranean, differs from the Vakhsh culture and from the settled farmers, which are similar to each other. Many of the steppe elements have been connected to the Andronovo culture, especially the Fëdorov and Tazabag"yab varieties, but Mandel'shtam and Lyonnet also stress that the material culture of the nomads in southern Tajikistan is extremely poor, especially in metal objects and there is no indication of social differentiation.

The Bishkent and Vakhsh cultures represent the late Molali phase of the Sapalli culture, the North Bactrian variant of the BMAC, corresponding to the Takhirbaj period in Margiana (c. 1700-1500 B.C.). It is significant that the beginning of this period coincides with the "collapse" of the BMAC, which continues without a break but in a much impoverished form and with less social differentiation. It seems conceivable that the nomadic tribes associated with the Bishkent and Vakhsh cultures took over the BMAC, as was once argued (Parpo-

la 1988: 230). Yet, there is no visible "andronovisation" of the culture, even though horse bones and terracotta model of spoked wheels have been discovered at several sites in southern Turkmenia (Francfort 1989,I: 429f.). This suggests that, once again, the conquerors had quickly taken over, and adopted themselves to, the earlier local culture (the BMAC). Such an interpretation of the archaeological evidence would agree with the legends which the Ṛgvedic hymn preserve about the battles of the most ancient Vedic kings against rich enemies called Dāsa, Dasyu and Paṇi.

The Dāsas of the Ṛgveda and the BMAC

Important clues to an archaeological understanding of the Ṛgvedic invasion are provided by the references to the enemies of the Ṛgvedic Aryans. Indra and his protégés, namely the earliest Ṛgvedic kings, are said to have destroyed the strongholds of these enemies. When Sir Mortimer Wheeler unearthed the huge defensive walls of Harappa in 1946, he identified the Dāsa forts as the fortified of the Indus Civilisation (Wheeler 1947: 78-82). This hypothesis was widely accepted until 1976, when Rau published his study of relevant Vedic passages which showed that, unlike the rectangular layout of the Indus cities, the Dāsa forts had circular, and often multiple concentric, walls. Moreover, the Dāsa forts were not regularly inhabited cities but functioned as temporary shelters, particularly for the protection of cattle. I have argued that the Dāsas, Dasyus and Paṇis were actually Indo-Iranian-speaking BMAC tribes, and that the battles against them described in the Ṛgveda took place in and around nothern Bactria, before entrance to Gandhāra on the eastern side of the Hindukush (Parpola 1988: 208-218).

Bactria and Margiana is precisely the region where the Dāsas, Dasyus and Paṇis are placed in Old Persian, Greek and Latin sources. (In Old Persian inscriptions, *Daha* (<**Dasa*) is the name of a people, and (in the plural) of a province situated next to that of the *Sakas*. According to Q. Curtius Rufus (8.3) and Ptolemy's Geography (6.10.2) the people called *Daha* lived on the lower course of the Margos (Murghab), that is, in Margiana, while Pomponius Mela (3.42), based on Eratosthenes, says that the river Oxus bends towards the northwest near the *Dahas*. Strabo (11.9.2) informs us that a people called *Parnoi* was one of the *Da(h)a* tribes and that they had previously lived along the Okhos river (modern Tedjen in Margiana). Vedic *Paṇi* is best explained from **Pṛṇi*, a low-grade variant of *Parnoi*; this ethnicon and the name of the *Dāsa* king *Pipru* may both go back to the Indo-Aryan verbal root √*pṛ* (present *piparti* or *pṛṇāti*) "to bring over, rescue, protect, excel, be able". In Sanskrit the word *dāsa* is used with the meaning of "slave", but this sense is due to the fact that people with the ethnic name *Dāsa* were taken captive in war, just as the English word *slave* originally denoted a captive *Slav* or the Finnish word *orja* "slave" a captive

Aryan. Many peoples call themselves by their native word for "man" or "human being" The tribal name *Daha* originally appears to be a noun meaning "male person, man, hero", since it survives as such in Khotanese Saka *daha*. The Wakhi word *dāi, δayək*, which has the same meaning, goes back to Old Iranian *dahyu*, from earlier *dasyu*. These are East Iranian languages later spoken in the Dāsa area, and are likely to have preserved local pre-Iranian vocabulary. The Dāsas, Dasyus and Paṇis could, therefore, actually have spoken an Indo-Aryan language, although one dialectically different from that of the Ṛgvedic Aryans (Parpola 1988: 219-224).

A fortified ceremonial centre with three concentric circular walls was found at the BMAC settlement in the oasis of Dashly-3 in northern Afghanistan. This is so far the only one of its kind known (more might be found in the mountainous ares, where the Ṛgveda places the Dāsa strongholds), but Kutlug-tepe demosntrates that the tradition of building forts with three concentric walls survived in Bactria until Achaemenid times. The form of these forts agrees with the description of a "three-fold fort" (*tripura*) in the Śatapatha Brāhmaṇa (6.3.3.24-25). In later Vedic and Hindu mythology *tripura* is usually the abode of Asuras "demons", opposed to Devas "gods". The Ṛgveda speaks of "a hundred forts" of the Dāsa, while the Aryans themselves are never said to have had anything but fire or rivers as their "forts". The later Vedic texts confirm this by stating that when the Asuras and Devas were fighting, the Asuras always won in the beginning, because they alone had forts. This suggests that the earliest Ṛgvedic Aryans were newcomers in Bactria, whose fortified BMAC settlements thay must have passed if they entered South Asia along the Oxus and the Kabul and Panjkora rivers around 1700 B.C.. The Ṛgvedic Aryans described their enemies as rich and powerful, defending their cattle, gold and wonderful treasures with sharp weapons, horses and chariots. This description fits the BMAC in Bactria, with its finely decorated golden cups, weapons with ornamental animal figurines including the horse, and trumpets indicative of chariot warfare (Parpola 1988: 216-218).

The gods of the Dāsas and Ṛgvedic Aryans and the Mitanni Aryans

The Dāsas worshipped gods called *asuras*, which were "demons" for the Aryans, while the Aryans gods were called *devas*. It is true that after the fusion of the Aryans and Dāsas, even Aryan gods like Indra are occasionally called *asura*, though Indra originally bore the title "slayer of Asuras". The foremost *asura* is Varuṇa, often paired with Mitra. In the Avesta, Varuṇa is not mentioned but has an exact counterpart in Ahura (Mazdāh), whom Zarathustra re-established as the highest god in eastern Iran after the coming of the Iranian tribes, instead of the *daēva* Indra whom he condemned as a demon: the Avestan compound *Miθra-Ahura* corresponds to the Vedic and Mitanni *Mitrā-Varuṇā*. Ṛgvedic hymns indi-

cate that some early Aryan kings entered into alliances with the irreligious enemy, and that some rich Dāsa kings like Balbūtha Tarukṣa started worshipping Indra. Apparently, in order to secure the loyalty of their newly won Dāsa subjects, early Aryan kings made a compromise and adopted the cult of Varuṇa, the principal deity of their former enemies. In RV 10.124.5, Indra invites Varuṇa to join the ranks of the *devas* as a king after the defeat of the *asuras*. In view of the background sketched above, two consequences may be deduced from the fact that *both* Indra and Varuṇa are invoked in the Mitanni oath of 1380 B.C.: (1) the amalgamation of early Ṛgvedic Aryans and Dāsas must have taken place in Bactria (and, probably, also in Margiana) before the former entered South Asia and (2) the Mitanni Aryans can have come from Bactria (Margiana) only *after* this amalgamation had already taken place (Parpola 1988: 224-229).

The BMAC connection with Goddess worship in eastern India

We saw earlier that the Gandhāra Grave culture, after some centuries in Swat, descended to the plains of the Punjab and fused there with another cultural tradition. This acculturation process may explain the cultural and linguistic change that took place in the Vedic literature after the Ṛgvedic period. A case in point is provided by the phonemes and case forms which in Classical Sanskrit are more archaic than in the Ṛgvedic language and which in the early Brāhmaṇa texts begin to replace tha latter[4]. I have suggested that these two different dialects of Old Indo-Aryan represent two separate waves of Aryan tribes, which have entered the Subcontinent through different routes. This may be understood as a modification of the old two-wave hypothesis of Hoernle and Grierson, based on the distributional pattern of the New Indo-Aryan languages which has been rightly criticised recently (Witzel 1987: 235).

In the same way we can explain, for instance, why the word *asura* - which at first denoted "demon" for Ṛgvedic Aryans, then became a respectable title for Aryan gods, and finally more or less fell out of use in the Ṛgveda - suddenly returned to favour in the Brāhamaṇa texts with the original meaning of "demon". Apparently, people worshipping gods called *asura*, related to the Dāsas encountered many centuries earlier in Bactria, were once again rivals of the Vedic Aryans. Ancient and modern tribal names derived from Dāsa are, in fact, known from the Indus Valley (cf. Parpola 1988: 262).

There seems to exist an ancient Indian tradition that has preserved information relating to the Dāsas independently of the Ṛgvedic tradition. One example is the Sanskrit word *tripura*, unknown to the Ṛgveda but used in the Brāhmaṇa texts for the strongholds of the Asuras. Cf Norman 1990:

[4] For example Classical Sanskrit preserves the old Indo-European *l*, while Ṛgvedic Sanskrit had *r*, consider also Classical Sanskrit *-ās* and Indo-European *-ōs* as opposed to Ṛgvedic *āsas*.

...the use of the word *tripura* is found in the Śatapatha Brāhmaṇa, not in the Ṛgveda, and if this is a genuine reminiscence of forts which the ancestors of the Sanskrit speakers attacked and captured on their way through Bactria, we are talking of a period of time perhaps as much as 1000 years before the time of that Brāhmaṇa, and we should need to explain how this memory was kept alive for so long. Since the word *tripura* does not appear in the Ṛgveda, we should have to assume that the memory of these cities was retained in the tradition of some non-Ṛgvedic Indo-Aryan tribe.

The word *tripura* has important religious implications. I shall only briefly deal with the religion of the BMAC, which I have examined elsewhere (Parpola 1988: 251-264; also Parpola 1992, 1993, in press). There is widespread evidence for the worship of a goddess connected with lions (for a new BMAC seal with this motif see Sarianidi 1993c), ultimately going back to the traditions of the ancient Near East. Connections with the later Indian worship of Durgā, the goddess of victory and fertility escorted by a lion or tiger, the protectress of the stronghold (*durga*), are suggested by several things. The ground plan of the Dashly-3 "palace" is strikingly similar to the Tantric *maṇḍala* (Brentjes 1981; Brentjes 1986: 234; Brentjes 1987: 128f.), the ritual "palace" of the god or goddess in the Hindu cult. A Bactrian seal depicting copulating pairs, both human and animal, reminds one of the orgies associated with the principal festival of the goddess. Wine is associated with the cult of the goddess and may have been enjoyed from the fabulous drinking cups made of silver and gold found in Bactria and Baluchistan, for viticulture is an integral part of the BMAC (Miller 1993: 151, 154). Durgā is worshipped in eastern India as Tripurā, a name which connects her with the strongholds of the Dāsas.

Of course, the Śākta tradition of eastern India is far removed from Bactria and the Dāsas both temporally and geographically. But the distance between these two traditions can be bridged by means of Vedic and Epic evidence relating to Vrātya religion and archaeologically by the strong resemblance between the antennae-hilted swords from BMAC sites in Bactria and the Gangetic Copper Hoards (c. 1700-1500 B.C.). The linguistic data associated with the Dāsas also link them with the easternmost branch of Middle Indo-Aryan, the Māgadhī Prakrit. The age-and-area principle of anthropology suggests that the earliest wave of Indo-Aryans was the first to reach the other end of the Subcontinent.

The problem of the Soma

The Ṛgvedic Aryans make it clear that the religion of the Dāsas differed greatly from their own: it is expressly stated that these enemies did not worship Indra, nor did they press Soma. Indra is the most popular deity of the Ṛgveda, the god of war and thunder and a central element in Indra's cult was a drink originally called * *Sauma*: Vedic *Soma*, and Avestan *Haoma*, the cultic drink which Zoroastrianism evidently adopted from the earlier Bronze Age religion of Central Asia and eastern Iran. Indra was undoubtedly associated with *Haoma* also in this reli-

gion against which Zarathustra rebelled - Indra is invoked by the Mitanni Aryans in 1380 B.C. - but he was dethroned and made a demon by Zarathustra. Other early Indo-Europeans did not drink *Sauma* (cf. Norman 1990: 292f.). Therefore, it seems unlikely that this cult was started in the Pontic-Caspian steppes, which was probably the Indo-European homeland, or by the proto-Aryans or proto-Iranians, who probably occupied the same area. *Soma* is likely to be a Proto-Indo-Aryan invention.

The botanical identity of the *Soma* plant has been debated for a long time, but most specialists nowadays opt for Ephedra (cf. Falk 1989; Nyberg in Chapter 16 of the present volume). In Margiana, Sarianidi has discovered vessels which chemical analysis has shown to contain organic remains of Ephedra. They came from temple-like buildings at Togolok-21 and Gonur-1, with white-plastered rooms having platforms along walls with sunk-in vessels, and adjoining rooms having ceramic stands and sieves. Their ritualistic function is also suggested by other finds from these temples, including "miniature columns", fragile clay bowls with animal figurines along their rims, and seal-amulets showing winged dragons (a BMAC motif reminding us of the Az]i-Dahāka, the "Dāsa serpent" apparently depicted on the Hasanlu bowl). A third temple of the same kind was found at Togolok-1, with lime plastered grooves in the floor. At Gonur-1 the ritualistic vessels also contained remains of poppy and cannabis, at Togolok-21 traces of poppy were found on stone mortars and pestles (Sarianidi 1987; Sarianidi 1990: 102ff, 203ff.; Sarianidi 1993a, 8; Sarianidi 1993b; Kussov 1993).

These finds are of the greatest interest, as they may represent the earliest available evidence of the *Soma* cult; however, as the contribution of H. Nyberg to this volume contains a fresh examination of this problem from the point of view of plant chemistry, I shall not go into further details here. Suffice it to say that if the Margiana temples and their vessels date to the BMAC period (c. 1900-1700 B.C.) and if the vessels contain remains of Ephedra, we may assume that the Dāsas of Margiana did in fact press *Soma*, and that they had introduced the cult from the early phases of the Andronovo (i.e. Petrovka) culture. The BMAC people of Bactria, assumed to have been the Dāsa enemies of the Ṛgvedic Aryans, would in that case have given up the *Soma* cult and adopted the earlier local rituals (cf. Norman 1990: 292f.). In fact, the temple-fort of Dashly-3 has only provided evidence of a fire cult, which is known from Margiana as well. If the Margiana temples date from the Takhirbaj Period (c. 1700-1500 B.C.), then the *Soma* cult was introduced to both Bactria and Margiana by the conquerors of the Dāsas who belonged to the same group as the Ṛgvedic Aryans. In that case the use of *Soma* might have started only during the Alakul'-Fëdorov phase of the Andronovo culture, and this could have taken place in the Ferghana or Zeravshan mountains, the area of the later Sakā Haumavargā (cf. Parpola 1988: 232), or in fact anywhere in the vast Andronovo territory, including the Tian Shan

mountains on the borders of China where "Ephedra ... has been recognised for many centuries as a medicine" (Flattery and Schwartz 1989: 72f.).

IV

The last phase of the Bronze Age in Margiana (Takhirbaj Period) and Bactria (Molali Period) is succeeded c. 1500 B.C. by the Early Iron Age culture of Jaz I. It is characterised by a handmade, painted ceramic with triangle and ladder motifs, known from southern Turkmenistan (Anau IVA, El'ken Tepe II, Ulug Tepe and three other sites east of Ashkabad), Margiana (Jaz I, Gonur, Togolok, Uch Tepe, Adam Basan, Taip, Garaoj Tepe, Takhirbaj Tepe) and Bactria (Tillya Tepe in northeastern Afghanistan, Kuchuk Tepe II in Uzbekistan, Kyzyl Tepe, and several newly discovered sites). The Jaz I culture is thought to reflect the sedantarisation of nomads coming from the steppes of Central Asia and Kazakhstan (passing by the Tazabag"yab culture of Khoresmia). It is connected with the local Chust culture of Ferghana, with Mundigak V-VI in Seistan as well as with Pirak I-III on the Kachi Plain in Baluchistan. At Pirak, terracotta figurines of mounted horsemen appear in layers I and II. Unlike the Tazabag"yab and Chust cultures, the Jaz I culture has not yielded a single necropolis, indeed, not even a single tomb was found in the region that dated prior to the arrival of the Greeks. The arrival of the Jaz I culture may, therefore, signal the arrival of the Zoroastrian mode of disposal of the dead by exposure (Francfort 1989,I: 430-434; Lyonnet 1994).

Generally speaking, the geographical milieu reflected in the Gathas of Zarathustra overlaps that of the Jaz I culture. There has been, and continues to be, much debate about the homeland of the prophet, but he is usually placed in Seistan or Bactria-Margiana (cf. Schmitt 1989b: 25-26); his language differs from that of the Achaemenid inscriptions so much that it cannot come from Fars (Kellens 1989: 35-36). The date of Zarathustra is even more controversial: while some scholars defend the traditional date of the Zarathustran clergy, placing him in the 6th century B.C., many date him to c. 1000 B.C., some as early as the 15th century B.C. (*Ibid*). The Jaz I culture accomodates this broad spectrum. Further, the distribution of Jaz I pottery also agrees fairly well with that of the East Iranian languages; its ultimate provenance is unknown, but if the Pontic-Caspian steppes really represent the Proto-Iranian homeland, then we should also look for the origins of the Jaz I culture in that direction. Because they came to southern Central Asia from the northeast, we must assume that the Iranian-speaking mounted nomads quickly spread all over the Asiatic steppes and assimilated the formerly Proto-Indo-Aryan-speaking pastoralists during the late phase of the Andronovo culture.

The route north of the Caspian Sea seems to have been followed also by the "Proto-West-Iranians", whom Young (1985) connects with the Late West Iranian Buff Ware: this ceramic first appears c. 1100 B.C. in the Gorgan plain and then spreads westwards to the sites of the Median and Persian kingdoms. It is related to the ceramic of "Archaic Dakhistan" in the Atrek Valley on the east coast of the Caspian Sea, where it represents an intrusive culture (Khlopin 1986: 32; Brentjes 1986: 236).

The Ghalegay V face urns and the origin of the Nūristānī languages

A final major problem in the coming of the Indo-Iranian languages to Central Asia, Iran and India concerns the formation of the "third branch", which has until now survived almost intact for millennia in the northern valleys of Pakistan and Afghanistan. The Ghalegay V phase of Swat (c.1400-800 B.C.) was initiated by the violent arrival of new people from the west. It might have brought the "Kafir" or Nūristānī peoples to the western border of the Dardic languages; such a distribution certainly suggests that the Nūristānī languages arrived from the west later than the Dardic languages, and not vice versa as is commonly assumed (Parpola 1988: 243-248). The Nūristānī disaspiration is an important isogloss with the Iranian languages, although the development is identical only with regard to voiced aspirates. So, it is possible to think that the Nūristānī languages might have arrived as a kind of vanguard of the Iranian languages. Yet the archaism of the former - with, for example, affricates representing the Proto-Aryan level - also suggests a long period of isolation.

The most characteristic, inclusive trait of the Ghalegay V culture is the "face-urn", a funeral pot (containing the ashes of the dead) with a human face. It has analogies in Transcaucasia in the third millennium B.C., in the Danube Valley in the mid-second millennium B.C., and (with some differences) in Sialk B in western Iran around the beginning of the first millennium B.C.. Lyonnet (1994) refers to Transcaucasia as a possible source of Jaz I pottery, since recent excavations there have produced both painted ceramics with triangle and ladder motifs and black polished ware with applied motifs, some of the latter being "face-urns". In the times of mounted nomadism, small groups could cover great distances without leaving any trace of their migration. Transcaucasia could, in its relative isolation, well have preserved some nearly Proto-Indo-European features, while on the other hand taking part in the development of the neighbouring Proto-Iranian. Thus the Early Bronze Age royal graves of Majkop or Novosvobodnaya (late third millennium B.C.) have often been seen as Proto-Aryan (e.g. Vasilkov 1994).

Summary: List of suggested correlations

Srednij Stog and Khvalynsk culture (c. 4500-3500 B.C.):	Early Proto-Indo-European
Pit Grave culture (c. 3500-2800B.C.):	Late Proto-Indo-European
Hut Grave and Catacomb Grave cultures (c. 2800-2000 B.C.):	Proto-Aryan
Early Timber Grave (c. 2000-15000 B.C.):	Proto-Iranian
Early Andronovo (Petrovka: c. 1900-1700 B.C.):	Proto-Indo-Aryan I (Pre-Proto-Dāsa)
BMAC (c. 1900-1700 B.C.):	Proto-Indo-Aryan II (Proto-Dāsa)
Andronovo (Alakul'-Fëdorov: c. 1700-1500 B.C.):	PIA III (Pre-Proto-Ṛgvedic)
Early Gandhāra Grave culture (Ghalegay IV: c. 1700-1400):	PIA IV (Early-Proto-Ṛgvedic = Early Proto-Dardic)
Takhirbaj-Molali culture (Late BMAC c. 1700-1500 B.C.):	PIA V (Pre-Proto-Mitanni)
Early West Iranian Grey Ware (c. 1500-1000 B.C.):	PIA VI (Proto-Mitanni)
Late Gandhāra Grave culture (Ghalegay V):	Pre-Proto-East Iranian = Proto-Nūristānī, partly fusing with Late Proto-Ṛgvedic=Late Proto-Dardic.
Jaz I and related culture (c. 1500-900 B.C.):	Increasingly Proto-East Iranian
Late West Iranian Buff Ware (c. 900-700 B.C.):	Proto-West Iranian (Proto-Median & Proto-Old Persian)

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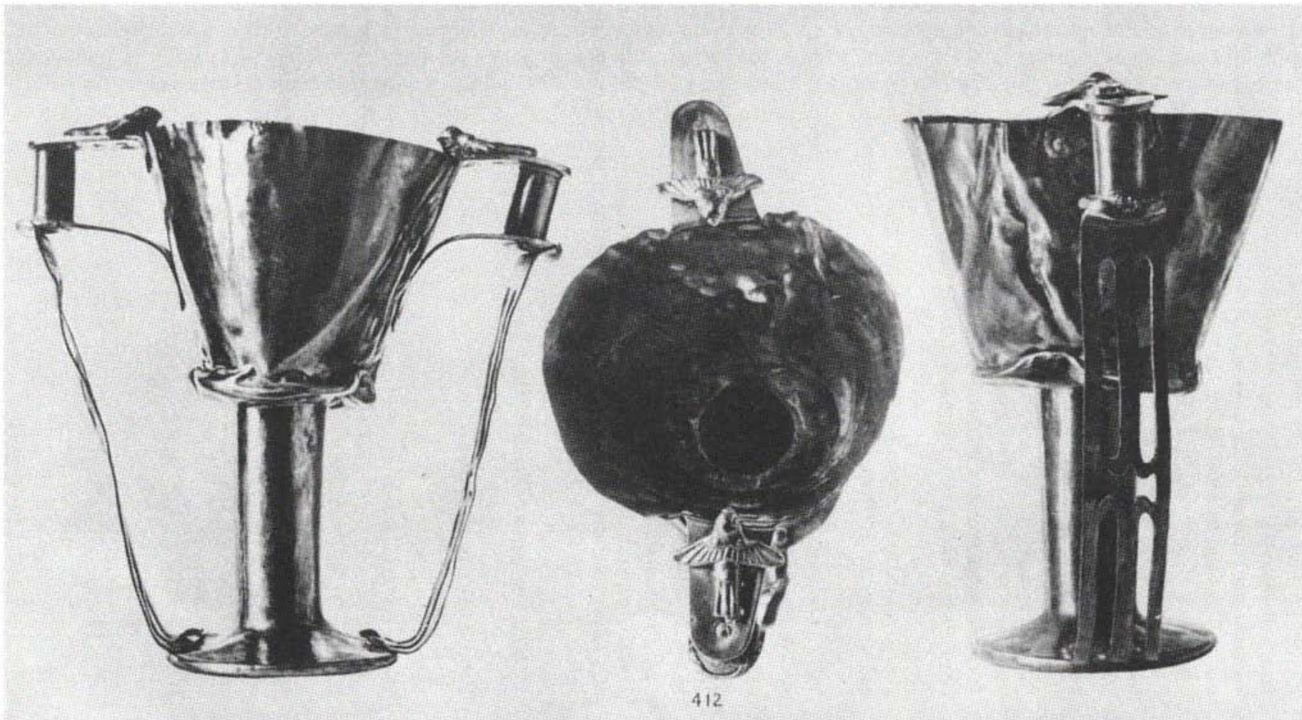


Figure 1: 'Nestor's cup' from Shaft Grave IV in Mycenae (dating from Late Helladic I Period). Gold. Diam. c. 14,5 cm, height c. 14 cm. A spread-winged bird decorates the top of the handle on either side. After Karo 1930-33, Tafel CIX, no.412.

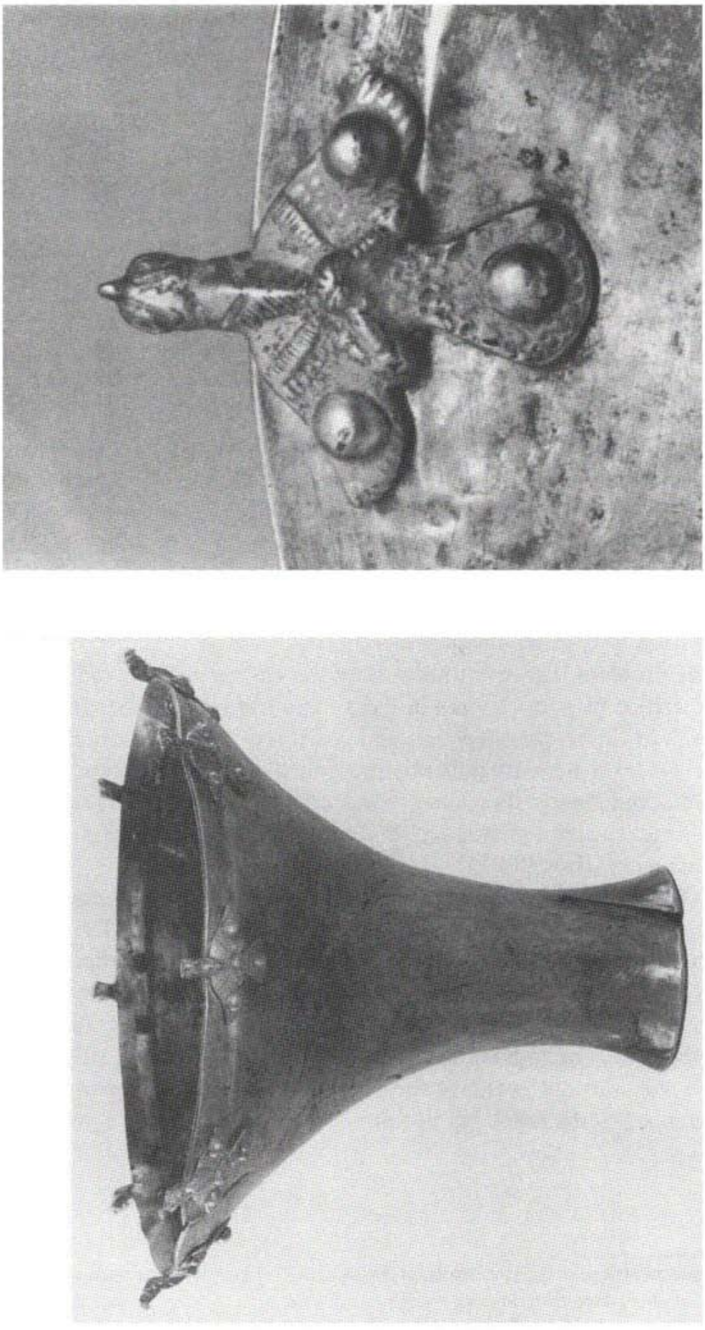


Figure 2: (a) Electrum cup from plunder excavations in Bactria, now in the Metropolitan Museum of Art, New York (lent by Norbert Schimmel, L. 1983.119.19). Height 12 cm. (b) Detail: one of the eight spread-winged hawks or eagles attached to the rim with three round-headed rivets at equal intervals. "Facing away from the interior, their heads and necks project above the mouth of the vessel, making the cup awkward for drinking" (Pittman 1984, 64). After Pittman 1984, 68-69 no. 31.

Harri Nyberg

16. The problem of the Aryans and the Soma: The botanical evidence

Introduction

As a botanist specialising in plant chemistry, my aim in writing this paper is to present some ideas concerning the botanical identity of the sacred *soma/haoma*, including the pharmacological properties of some promising candidates for *soma/ haoma* and the distribution of these plants in relation to the proposed original or later common settlement areas of the Indo-Aryans in their subsequent migrations. I am well aware that the botanical identity of *soma/haoma* has been an unsolved riddle for a long time, but surprisingly few scholars have been deeply interested in the problem. However, because of the central role played by the pressing and sacrifice of *soma/haoma* in Indian and Iranian religions, both in ancient and modern times, this question appears to be rather important. The Vedic and Avestan texts themselves do not offer much material for the botanical identification of *soma/ haoma*, but some characteristics of the plant(s) can be deduced from the texts, although it is well to remember that these are predominantly ritual utterances (Brough 1971).

As no parallels can be found outside Indo-Iranian cultures, it seems that *soma/ haoma* is a unique Indo-Iranian innovation (Keith 1925: 171). The Indian *soma* and the Iranian *haoma* have the same origin and share most of their other characteristics, but the mythologies connected with them are different (Falk 1989). *Soma* is described by the Vedic poets as a plant, a plant extract or a god manifested in the extract or "inhabiting" it or the plant itself (Brough 1971), but most often the poets do not speak of the plant. In the Ṛgveda, for instance, *soma* is characterised by the following verses:[1]

[1] In all Ṛgvedic quotations I have used the edition of Aufrecht (1955) and the German translation of Geldner (1951), without attempting to render anything in English.

ásāvy aṅśúr mádāyāpsú dákṣo giriṣṭhā́ḥ I *śyenó ná yónim ā́sadat* I

Der Stengel war zum Rauschtrank ins Wasser ausgepreβt, der wirksame, auf dem Berge gewachsene. Wie ein Falke (ins Nest) hat er sich an seinen Platz gesetzt. (RV 9.62.4)

pári suvānó hárir aṅśúḥ pavítre rátho ná sarji sanáye hiyānáḥ I
ā́pac chlókam indriyám pūyámānaḥ práti devā́ṅ ajuśata práyobhiḥ II

Es (kreist) der falbe Stengel ausgepreβt in der Seihe um. Wie ein Wagen schoβ der los zum Gewinn getrieben. Er hat den indrischen Ton erreicht, wahrend er geläutert wird. Den Göttern ward er durch seine Labungen wohlgefällig. (RV 9.92.1)

pári suvānó giriṣṭhā́ḥ pavítre sómo akṣāḥ I *mádeṣu sarvadhā́ asi* II

Der berggewachsene Soma kreiste ausgepreβt in der Seihe um. - Im Rausche bist du der Allgewährer (RV 9.18.1)

eté asṛgram āṣávo 'ti hvárāṅsi babhrávaḥ I *sómā ṛtásya dhā́rayā* II 4 II
índram várdhanto aptúraḥ kṛṇvánto víśvam ā́ryam I *apaghnánto árāvṇaḥ* II 5 II
sutā́ ánu svám ā́ rájo 'bhy árṣanti babhrávaḥ I *índraṃ gáchanta índavaḥ* II 6 II

(4) Die braunen Renner wurden losgelassen uber die Hindernisse, die Somasafte in ordnungmässigen Strome, (5) den Indra stärkend, das Wasser überwindend, alles arisch machend, die Missgünstigen vertreibend. (6) Ausgepreβt rinnen (rennen) die Braunen ihre eigene Strecke entlang, die Säfte, zu Indra gelangend. (RV 9.63.4-6)

Soma-drinking is associated especially with Indra, the warrior god, who slays evil (Keith 1925: 166ff.). The enemies of the Aryans in India (the Dāsas and Paṇis) did not press *soma*, and were thus considered to be enemies of Indra as well (Parpola 1988). In the Iranian tradition, *haoma* was apparently taken as a stimulant before going into battle (Malandra 1983: 150-151). However, *haoma* has no association with any specific god but functions as a mythological priest and as an energising offering to different gods (Falk 1989; Malandra 1983: 15) and warriors drinking it would quickly be filled with battle-fury (Boyce 1979: 5). *Soma* in the Ṛgveda is mainly for the gods, but it also gives humans strength in battle:

ā́ naḥ śuṣmaṃ nṛṣā́hyaṃ vīrávantam puruspṛham I *pávasva soma dhā́rayā* I

Bring uns durch deine Läuterung männerbezwingende Kraft, söhnereiche, vielbeneidete, o Soma, in deinem Strome! (RV 9.30.3)

asmā́n samaryé pavamāna codaya dákṣo devā́nām ási hí priyó mádaḥ I
jahí śátrūṅr abhy ā́ bhandanāyatáḥ píbendra sómam áva no mṛdho jahi I

Mach uns im Wettkampf scharf, o Pavamāna, denn du bist die Kraft der Götter, ihr lieber Rauschtrank! Erschage die Feinde, (komm) denen zu (Hilfe), die Löbliches erstreben! Trink, Indra, den Soma, drisch auf unsere Verächter los! (RV 9.85.2)

Falk (1989) pays special attention to the capacity of *soma/haoma* to keep one awake and alert even at night. Poets in the Ṛgveda attribute their religious insight and intellectual creativity to the powers of *soma*: the drink enables poets to compose hymns. This applies also to *haoma* (Boyce 1979: 5; Falk 1989; Malandra 1983: 150f.). Under the influence of *soma/haoma* it was easier to grasp the meaning of Truth (Vedic *ṛta*, Avestan *aṣa* ; Malandra 1983: 150-151). *Soma/haoma* is associated with mountains: it grows there and is brought from there (Keith 1925: 169). It is also closely associated with waters (Falk 1989). *Soma* grew in areas far from the dwellings of the Aryans after their arrival in India, and it was necessary to purchase the plants. However, because of the sanctity of the plant, the *soma*-seller was regarded as a disgraceful creature (Keith 1925: 169).

Over one hundred botanical candidates for the identity of *soma/haoma* have been proposed. At present, the general view is that *soma/haoma* was one plant (Falk 1989); however, Boyce (1979: 5) states that the *haoma* in the ritual offering to the waters made at the end of the *yasna* was prepared from milk, the leaves of one plant and the juice obtained from pounding the stems of another. This idea awaits further clarification. Widengren (1965: 109) has stated that the *haoma* was originally an intoxicating drink and was later replaced by a stimulating mixture of plant juice, water and milk (*parāhōm*). Widengren also connects *haoma* with *barsom* (Avest. *baresman*), the sacred twigs of Zoroastrian rituals, and Flattery (Flattery and Schwartz 1989: 80) and Kanga (1989) even state that *baresman* (Pahl. *barsom*) could be *haoma* (Pahl. *hōm*) plants. Mukhopadhyay (1978) seems to be in favour of more than one plant and states that plants bearing a particular juice were known as *soma* plants. However, the latest Indian contribution to the *soma* discussion, published by Kashikar (1990), argues quite convincingly for one plant only. Thus, any concrete description of the plant would be impossible.

The major candidates for *soma/haoma* have been the following plants: *Cannabis sativa L.* (syn. *C. indica Lam.*, hemp); *Peganum harmala L.* (Syrian rue); *Amanita muscaria (L.: Fr. Pers.*, Red Fly agaric); the genus *Ephedra L.* (ephedra, joint fir); *Panax ginseng C.A.M.* (ginseng); and the rhubarb genus *Rheum L.* (Brough 1971; Falk 1989; Flattery and Schwartz 1989; Mahdihassan 1974; Qazilbash 1960; Stein 1931; Wasson 1968; Windfuhr 1985). Other plants worth considering in this matter are *Papaver somniferum L.* (opium poppy; Merlin 1984) and *Lagochilus inebrians Bge.* (Schultes 1970). Flattery (Flattery and Schwartz 1989: 76ff.) also puts forward the pomegranate (*Punica granatum L.*) along with the ephedras as possible substitutes for the original *haoma*. The pomegranate is also mentioned as *baresman* by Kanga (1989). The leafless creepers of the family Asclepiadaceae, *Sarcostemma viminale R. Br.* (syn. *S. brevistigma W. & A.*) and *Periploca aphylla Decne.* have been used in modern India for *soma* ceremonies, but are recognised as substitutes for the original *soma* (O'Flaherty 1968; use of *P. aphylla* is very doubtful according to Kashikar 1990: 24-25).

The principal candidates for the botanical identity of *soma/haoma* may be briefly summed up in the following table (with an asterisk indicating those that have not been identified with *soma/haoma* in the literature):

Plant species	Plant family	Active compounds
Ephedra	Ephedraceae	ephedrine, pseudo-ephedrine
Cannabis sative L. (= C. Indica Lam., C. ruderalis Janisz.)	Cannabaceae	tetrahydrocannabinol
Peganum harmala	Zygophyllaceae	harmine, harmaline harmalol, harman
Papaver somniferum L.*	Papaveraceae	morphine, codeine thebaine, narcotine
Sacrostemma viminale R. Br. (= S. brevistig-ma W. & A.)	Asclepiadaceae	alkaloids, terpenoids
Periploca aphylla Decne	Asclepiadaceae	Digitalis-type glycosides alkaloids, terpenoids
Panax ginseng	Araliaceae	ginsenosides
Amanita muscaria (L.: Fr.) Pers	Agaricaceae	ibotenic acid muscimol, muscazon
Rheum L.	Polygonaceae	hydroxyanthracenes
Lagochilus inebrians Bge*	Lamiaceae	lagochiline

A primary consideration in the identification process is whether or not *soma/haoma* can be regarded as a hallucinogen. Sacred texts can be interpreted as describing the effects of a hallucinogen or of an intoxicant with sympathomimetic characteristics. However, in Falk's opinion (1989), the only reason to expect hallucination as an effect of *soma*-drinking is the well-known Labasūkta (RV 10.119). In my opinion, as well, it is possible to choose a hallucinogenic candidate only if you have already decided to interpret the texts in this way. Of the botanical candidates for the original *soma/haoma*, *Amanita muscaria* and *Peganum harmala* have hallucinogenic properties. *Amanita muscaria* contains isoxazole compounds, and the active components of *Peganum harmala* are harmaline alkaloids. Studies in favour of a hallucinogen have been, among others,

those of Flattery and Schwartz (1989; *Peganum harmala*) and of Wasson (1968; *Amanita muscaria*). On the other hand, a sympathomimetic plant has been the choice of Boyce (1970), Falk (1989), Mahdihassan (1963, 1974, 1985), Qazilbash (1960) and Watt (1890) who argue for *Ephedra*. This genus is also Kashikar's candidate (1990), who has carefully reviewed the most important earlier contributions to the question and agrees, on the whole, with the ideas of Qazilbash (1960), Brough (1971) and Falk (1989). Earlier proposals for the identity of *soma/haoma* with alcohol must be rejected (but see, for instance, Widengren 1965: 29ff.). This also applies to those plants not occurring in the ancient or modern homes of Indo-Aryans, such as *Panax ginseng*. In my opinion, plants with little or no sympathomimetic effects, such as *Rheum, Sarcostemma* and *Periploca*, are not likely candidates, either. In the following, I will try to present evidence which, in my opinion, shows that the ephedras are the most likely plants to be identified as the original *soma/haoma*.

Hemp (Cannabis sativa) as a candidate for Soma/Haoma

The hemp plant (*Cannabis sativa L.*, Cannabaceae) is one of man's earliest cultivated plants with a probable origin in Central Asia. It is a dioecious plant usually considered to be monotypic, although three species have been distinguished: *Cannabis sativa L., C. indica Lam.* and *C. ruderalis Janisch* (Schultes and Hofmann 1980: 87-97). It is cultivated both for its CNS (central nervous system)-affecting monoterpenoids, of which the most important is (-) - D^1 - 3, 4-*trans*-tetrahydrocannabinol (THC), and for its fibres which can be used for weaving. THC is present in all parts of the plant, although the unpollinated female (pistillate) flowers are those mainly used for drug production.

In spite of intensive studies, the mechanisms of the effects of THC on the human CNS are not well understood, and the effects vary depending on the dosage and the personality of the hashish user. THC is a lipid-soluble compound and thus it can be stored in the fatty tissues. The effects of hashish drugs have been reviewed by, among others Paton (1975), Paton and Pertwee (1973) and Paton et al. (1973). In general, the use of hemp preparations results in an altered, dreamy state of consciousness with a feeling of well-being and even joy. Senses are sharpened and, with strong doses, hallucinations may occur. The effects of THC are enhanced when a preparation is smoked, but their duration is shortened (Paton and Pertwee 1973). The human mind turns inwards under the influence of THC, and agressive behaviour has rarely been reported to occur.

Traditionally, the name for hemp in Sanskrit (*bhaṅga*) has been associated with the words found in some Uralic languages for a hallucinogenic mushroom (*Amanita muscaria*, the Red Fly Agaric: Mordvin *paŋgo*, Ostyak *paŋk* etc.; Czigány 1980; Flattery and Schwartz 1989: 121ff.; Munkácsi 1907). In RV

9.16.13, the word is used as an epithet of *soma*. Flattery (Flattery and Schwartz 1989: 124) argues that, in this context, the word is independent of psychotropic reference. It is known that the Scythians used hemp or hemp seeds as an intoxicant (Herodot, Book 4: 74-75; Jettmar 1981; Wüst 1939) and more recently the plant has been in wide use as an intoxicant and a mild hallucinogen in the Middle East, Central Asia and India. In India, hemp preparations have, in modern times, been known under the commercial names *ganjā*, *bhāng* and *charas* (Chopra and Chopra 1957; Moser-Schmitt 1981). In Iran, modern Persian has the name *bang*, which corresponds to the Avestan *baŋha* and the Pahlavi *mang* (Anwari-Alhosseyni 1981). In the Artāi Vīrāz Nāmak, *mang* is mentioned several times (*mang*, *mang-i Vištāsp* or *mang-i Zartuxšt*: Flattery and Schwartz 1989: 125ff.; Vahman 1986: 84-92), often translated as "a narcotic". "Medicinal mang" (*mang bēšaz*) is mentioned in Bundahišn 4.20, and it is also stated that *mang-i Vištāspān* was mixed with *hōm* (Dēnkard 7.4.85; Gnoli 1989). Thus, in the Avesta or the Pahlavi texts *banja*, *mang* or *bang* are not considered to be identical with *haoma*. We have to conclude that hemp is certainly not identical with *soma/haoma*, although it might have been an ingredient in some preparations derived from the use of the original *soma/haoma*.

The Opium Poppy (Papaver somniferum L.) in ancient Asia

The Opium Poppy is a very ancient cultivated plant and today no truly wild populations are known to exist (Merlin 1984: 45ff.), but its origins are thought to lie in the eastern Mediterranean region and the partly wild Mediterranean species, *P. setigerum DC.*, has been proposed as its probable ancestor (*Ibid*). *P. somniferum* has many ecotypes and cultivars which have spread to different parts of the world as a result of cultivation. Extensive archaeological evidence of its use in Switzerland, southern Germany, Spain, France, northern Italy and throughout the eastern Central European and Mediterranean area (Greece, Cyprus, Asia Minor, Syria, Iraq, Palestine, Egypt) exists at least from the Neolithic period onwards (Merlin 1984: 88ff., 110ff.). Its early use in Mesopotamian cultures seems to be an established fact, but some scholars have not accepted this (Krikorian 1975). Early, perhaps already in Vedic times, the Opium Poppy had also spread to India (the Persian *afyun* is not derived from the Greek οπιον but from Sanskrit *aphena;* Anwari-Alhosseyni 1981). It is cultivated both for its oil-bearing, edible seeds (which contain almost no alkaloids) and for the alkaloids, which are obtained mainly by making incisions in the walls of the seed capsules.

The Opium Poppy (*Papaver somniferum L.*, Papaveraceae) is not considered to be a genuine hallucinogenic plant (Schultes and Hofmann 1980: 15), in spite of its profound effects on the CNS of man. The effects are a result of the action of benzylisoquinoline alkaloids, of which morphine, thebaine, papaverine,

narcotine and codeine are the most important. To my knowledge, no one has actually proposed the identification of the Opium Poppy with *soma/haoma* and it can only be discussed as a possible addition to *soma/haoma* preparations. The pharmacological effects of opium on man are very well known: the alkaloids are very potent analgesics and hypnotics producing euphoria and sleep, so the Opium Poppy does not fit the textual evidence regarding the effects and external habit of *soma/haoma*. Moreover, although the Opium Poppy is widely cultivated in the Transcaspian areas nowadays, the Neolithic and Bronze Age distribution of the plant probably did not yet include the areas put forward as the homeland of today's Indo-Iranian speakers after a proposed first migration from the Pontic-Caspian area (Mallory 1989: 222ff.), i.e. the regions north of the Caspian Sea, on the banks of the Volga and in the Southern Urals (Parpola 1988, Chapter 15 in the present volume; Mallory 1989: 143 ff.).

Syrian Rue (Peganum harmala L.) as a candidate for Soma/Haoma

Syrian rue (*Peganum harmala L.*, Zygophyllaceae) is a perennial, branched herb bearing whitish flowers and narrow leaves, with a height of 40-70 cm. It is common in North Africa, throughout the Middle East and Iran, growing in dry localities. It is a polymorphic species with many forms, which are not taxonomically well known (Nabil El Hadidi 1972: 18-21). In Eurasia, the northernmost localities of its distribution are found approximately from around Chișinau (Kishinev; Moldova) to Voronezh (Upper Don) and the Southern Urals (Chikov 1976). However, the species is very rare in these areas and becomes more abundant only farther south. In Europe, it is fairly common on the lower Dnieper and Volga, and in the Crimea and Dagestan. In the Transcaspian areas, it grows in the Kopetdag mountains (Turkmenistan), in the basins of the Amu-darya and the Syr-darya and in certain parts of the Kyzyl-kum desert. In the former USSR, it seems to be most common in Uzbekistan, Kirgizia, and southern Kazakhstan. Ecologically it appears to be a pioneering species, which prefers places with sparse vegetation. This is reflected in its Russian name (*могильник*) as it often seems to grow on tombs.

Peganum harmala was very strongly advocated as *soma/haoma* by D.S. Flattery (Flattery and Schwartz 1989); his evidence relying mostly on Iranian studies. It has been reported, however, that as early as 1976 Flattery had decided that *P. harmala* must be identical with *soma/haoma* (Ott 1976). *P. harmala* is a hallucinogenic plant containing harmaline alkaloids which, as tryptamines, bear close resemblance to, for instance, mescaline (the hallucinogenic compound of the peyote cactus, *Lophophora williamsii (Lem.) Coulter;* Hegenauer 1973: 707-720; Hegenauer 1990: 776-786). The possible pharmacological differences between the many varieties of *P. harmala* are not known. Some South American

hallucinogens commonly used by Amazonian Indians (ayahuasca or yagé, *Banisteriopsis caapi (Spruce ex Griseb.) Morton* and *B. inebrians Morton*) also contain harmaline, and Flattery (Flattery and Schwartz 1989: 24ff.) considered this connection very important. Nonetheless, one has to ask why evidence should be sought from a very different and distant culture when the problem lies in the history of the Indo-Aryans.

The plant has been widely used in the Middle East and in Iran as an incense, aphrodisiac, vermifuge, lactogogue and dyeing agent (producing a red colour), and it has been highly esteemed amongst the peoples of the East (Schultes and Hofmann 1980: 341-343; Flattery and Schwartz 1989: 34). However, its possible use as a hallucinogen is not clear. Its vernacular names have been comprehensively listed by Flattery (Flattery and Schwartz 1989: 40). Usually they are derived from the Arabic *ḥarmal* or the Persian *spand* (e.g. Armenian *aspand*, Kirghiz *adraspan*, Pashto *spandah*, Baluchi *spand/hurmul* and Urdu *hurmur*) but, on the whole, the Turkic names are not related to these (e.g. Turkish *üzerlik*, Uzbek *isiriq*). According to Flattery (Flattery and Schwartz 1989: 45ff.) the Iranian names are derived from Proto-Iranian **svanta-* (Avestan *spenta*) meaning "possessing productive numinous power", which he abbreviated to "sacred". This seems to be one of his major arguments for the identification of *P. harmala* with *haoma* and also *soma*. He recognises the ancient use of ephedras by the Parsis as *hōm* and the *soma/haoma*-derived vernacular names for them, but dismisses these proofs (Flattery and Schwartz 1989: 68ff.). We will return to this question later.

In India and Pakistan *Peganum harmala* is a well-known medicinal plant, the seeds being used as a remedy for many different diseases (Kirtikar and Basu 1933: 456-458). The plant is also considered to be effective against asthma, coughs and rheumatism (the ephedras have these properties, too), but its narcotic and hypnotic properties are also recognised. Kirtikar and Basu (1933: 458) warned against the use of high doses, as these produce narcotic effects. In India, two varieties (dark-seeded and white-seeded) are distinguished, but these are thought to share the same pharmacological properties. In India and Pakistan, the plant is fairly common in suitable habitats in Bihar, Uttar Pradesh, Madhya Pradesh, Maharashtra, Rajasthan, Sind, Baluchistan and Waziristan. *Peganum harmala* is also recognised as a medicinal plant in Uzbekistan (Ivanova-Paroiskaya 1949: 8-9) and Kirghizia (Gubanov and Botsmanova 1963: 38-39).

In my opinion, the basic error in Flattery's ideas (Flattery and Schwartz 1989) is that he has tried to identify *soma/haoma* as a *hallucinogenic* plant (*Peganum harmala*). However, this supposition is doubtful (Falk 1989). Even Flattery himself, in the opening paragraphs of his book,[2] uses only the word *intoxicating*, which, of course, is quite different from *hallucinogenic*. Other features of

[2] Flattery and Schwartz 1989; pages 3-102 are written by Flattery, pages 103-152 by Schwartz.

Peganum harmala which do not fit very well with the general picture of *soma/haoma* are as follows: 1) if the use of *P. harmala* were an ancient Indo-Iranian custom, the areas where the plant commonly occurs seem to disagree with the proposed original or secondary homelands of the Indo-Aryans (Mallory 1989: 143ff., 222ff.); 2) *P. harmala* is fairly common in India, and it is odd that knowledge of the original *soma/haoma* should have been lost there; 3) the harmaline alkaloid amount is highest in the ripe seeds of *Peganum harmala* (2-7%), but there is no textual connection (Ṛgvedic or Avestan) between *soma/haoma* and plant seeds. Instead, it is repeatedly stated in the Ṛgveda that stems are identical to *soma*. The Vedic word usually translated as "stem", "stalk", "filament", is *amśu* - (Brough (1971), however, had a suspicion that this was the actual name of the plant itself), but there is nothing "filamentous" in *P. harmala;* 4) the alkaloids of *P. harmala* have a sedative, not stimulating, effect. Therefore, in my opinion, the evidence of Flattery is inconclusive and *P. harmala* cannot be identified with the original *soma/haoma.*

To identify *Peganum harmala* with the original *soma/haoma* also means that you have to locate, in the then still shared homeland of the future Indic and Iranian peoples, an area where this plant commonly occurs. This is exactly what Flattery attempts, in quoting the theory (Flattery and Schwartz 1989: 74) that the differentiation between the Indic and Iranian peoples took place in the Helmand valley in eastern Iran (this area lies, in fact, mostly in modern Afghanistan). However, this seems to contradict most published theories about the original homeland and subsequent migrations of the Indo-Aryans (Parpola 1988, Chapter 15 of this volume; Mallory 1989: 143ff., 222ff.).

The Red Fly Agaric (Amanita muscaria (L.: Fr.) Pers.) as a candidate for Soma/Haoma

Amanita muscaria (the Red Fly Agaric) is a well-known, large basidiomycete occurring in most parts of the Northern Hemisphere. As a mycorrhizal mushroom associated with birch, pine and some other conifers, in warmer climates it is found only in mountainous areas, and its occurence in treeless areas is doubtful. It has a large (5-15cm in diametre) red cap (which can be yellow in some strains) with numerous white, loose patches (remains of the velum) on the cap surface. The stem is white and the mushroom's height is 8 to 20 cm. The species is hallucinogenic, due to its isoxazole compounds (ibotenic acid, muscimole, muscazone, also bufotenine). In man, these compounds cause a poisoning termed as "the *Amanita pantherina* syndrome" (Bresinsky and Besl 1985: 98ff.). Since ancient times the Fly Agaric has been used as a hallucinogen among the peoples of Northern Siberia, both by shamans and ordinary people (see, for instance, Saar

1991). The main effects of use are lack of muscular coordination, mood fluctuation from bliss to rage, a sense of unreality, and hallucinations (Singer 1978; Bresinsky and Besl 1985: 98ff., 102ff.). The symptoms often begin with a short period of sleep. The capacity to exceed one's physical powers has also been reported; in northern Siberia, the ability to walk long distances in the deep snow without tiring has been observed, but when the drug wears off, exhaustion follows (Bogoras 1904-1909: 580-582). In some users, the Fly Agaric apparently causes a hangover, and withdrawal symptoms after long usage have been reported (Bogoras 1904-1909: 205ff.; Jochelson 1908: 582-584), but this seems to depend on the individual. The nature of the hallucinations caused by the Fly Agaric also seems to depend on the culture, psychological characteristics and physical characteristics of the user. Only the mushroom caps are used as a hallucinogen, as the stem contains only small amounts of isoxazoles (Bresinsky and Besl 1985: 103). That the isoxazole compounds pass through the human renal system intact, has led to the custom of urine-drinking in northern Siberia, as reported in several studies (Bogoras 1904-1909: 582-584; Jochelson 1908: 205ff.; Ohlmarks 1939: 107). The traditional use of the Fly Agaric as a hallucinogen is always connected with a shamanistic culture and world-view.

The eminent ethnomycologist, R. Gordon Wasson, was convinced that *Amanita muscaria* was identical to *soma/haoma*, and he tried to prove this in a book (Wasson 1968), in which Wendy Doniger (O'Flaherty) also wrote a valuable chapter describing the post-Vedic history of the *soma* plant (O'Flaherty 1968). The so-called "the Wasson theory", however, was received by the scientific world with mixed feelings. It appears that Sanskritists and Vedists were generally against it (with the exception of Ingalls (1971), who gave it some credit), but the theory gained the support of some cultural anthropologists (notably of La Barre 1970). The theory is so well-known that it is also mentioned in most generally read mycological works concerning *Amanita muscaria*, but perhaps Wasson's greatest contribution concerning the botanical identity of *soma/haoma* was that he brought the question up for general discussion at a time when it was not receiving the attention it deserved. Wasson himself clung to his theory to the end of his life (Wasson 1968, 1971, 1979, 1986a), but Doniger, Wasson's collaborator in this study, expressed her opinions very cautiously (O'Flaherty 1968, Wasson 1986b), until she revealed in her published reminiscences of Wasson (Doniger 1990), that he could never really convince her of the identity of *soma/haoma* with *Amanita muscaria*. However, she seems to be certain that the plant in question must be a hallucinogenic species. Kashikar (1990) has criticised the early opinions of Doniger (O'Flaherty 1968), which seemingly favour "the Wasson theory", but it seems that she was never certain about the botanical identity of *soma/haoma.*

In a careful revision of Wasson's book (Wasson 1968), Brough (1971) discussed the evidence offered for *Amanita muscaria* as *soma/haoma*, and arrived

at a negative conclusion mainly by analyzing the meaning and context of the Ṛgvedic verses (from the ninth *maṇḍala*) used by Wasson to prove his theory. Unfortunately, Wasson knew no Vedic Sanskrit, and had to rely on translations, mainly those of Geldner, Renou, and Bhawe. Brough (1971) could not accept the evidence used by Wasson on the grounds that some of the translations he used were misleading and that he seemed to arbitrarily connect Ṛgvedic phrases and verses which do not properly belong together. Brough (1971) states that Wasson's most serious mistake was to connect the following two verses, which formed the sole evidence for his ideas about the two forms of *soma* and urine-drinking by the priests:

tā̆bhyam víśvasya rājasi yé pavamāna dhāmanī | pratīcī́ soma tasthátuḥ |

Mit diesen beiden herrschest du über das All, mit den beiden Formen, o Pavamāna, die sich (uns) darbieten, o Soma (RV 9.66.2)

ātmanván nábho duhyate ghṛtám páya ṛtásya nā̆bhir amṛtam ví jāyate |
samīcīnāḥ sudānavaḥ prīṇanti tám náro hitám áva mehanti péravaḥ ||

Aus der lebendigen Wolke wird Schmalz und Milch gemolken; der Nabel (Mittelpunkt) der (Opfer-) ordnung, der Göttertrank, wird geboren. Vereint stellen ihn die Gabenschönen zufrieden; den zur Eile Getriebenen pissen die schwellenden Männer herab (RV 9.74.4)

According to Brough (1971), it is very unfortunate that Wasson accepted Renou's French translation, based on Geldner's German version (1951), concerning the real meaning of the word *dhāman* in RV 9.66.2 as the cornerstone of his theory. In contrast, Wasson did not adopt Renou's more accepted idea that the "swollen men" in RV 9.74.4 are the Maruts and the verse is concerned with rain, as is RV 9.74 in general. Wasson insisted that the Ṛgvedic verses should be stripped of exegesis and the words taken as they are (Wasson 1970), but it appears that the way he attempted to do this is open to serious criticism. I am not competent to engage in a discussion on the Vedic expressions and epithets for *soma*, but it seems that the texts themselves do not lend any support to the idea that *soma/haoma* would have been the Fly Agaric. This view is shared by Falk (1989), who did not consider Wasson's theory worth arguing in detail. Doniger (in the epilogue to Wasson 1986b) states that Wasson had not, in the beginning, deliberately set out to prove the identity of *soma/haoma* with Amanita muscaria, until she casually remarked to him about the "pissing" of *soma* in the Ṛgveda, which Wasson at once connected with the known property of the Fly Agaric isoxazoles to pass the human renal system intact and with the custom of urine-drinking in northern Siberia. After this, Wasson became more and more convinced that *soma/haoma* must be *A. muscaria.*

In my opinion, *Amanita muscaria* is unsuitable for any identification with *soma/haoma* on the following grounds: 1) The mushroom produces visions, sleep, and/or a peaceful state of intoxication; the duration of the effects is short;

2) *soma/haoma* is prepared from stems or stalks, which most probably should be regarded as fibrous (Brough 1971; Falk 1989) while the fleshy stems of *A. muscaria* contain only very small amounts of the pharmacologically active compounds, which are concentrated instead in the mushroom cap (these are the only parts of the mushroom used in northern Siberia); 3) culturally, the use of *A. muscaria* occurs only among the shamanistic peoples of northern Eurasia and it is neither a required part of any shamanistic rite, nor regarded as holy in them. On the contrary, only the "weak" shaman or a "recreational user" has to resort to the use of the mushroom (Eliade 1964: 210; Saar 1991); 4) the mushroom must have been rare in any of the proposed Indo-Iranian homelands. In contrast, when the use of *soma/ haoma* began, the Aryans seem to have been inhabiting a region where the to-date unidentified plant was abundant.

Lagochilus inebrians Bge. in Central Asia

Lagochilus inebrians Bge. (Russian зайцегуб опьяняющий; Lamiaceae) is a herb used as an intoxicant in Central Asia, but its existence seems to have been overlooked to some extent and not much is known of its effects or use by man (Tyler 1966, Schultes 1970). It is a perennial, branched, leafy plant with a height of 25-40 cm growing on submontane plains and low foothills, on pebble-beds, fluviatile outwash and gravelly slopes (Shishkin 1977: 121). The flowers are white. I do not believe or propose it to be identical to *soma/haoma* or to have any connection with it, but perhaps it is useful to know that, for centuries, in Central Asia this plant has been used as an intoxicant by Uzbeks, Turkmens, Tajiks and Tatars (Tyler 1966; Schultes 1970) mainly in the form of a tea. The plant is collected in October, when the level of its pharmacologically active compound, lagochiline, is highest. The structure of lagochiline is still unclear, but it has marked effects on the CNS of humans and is employed as an antihemorrhagic, an antispasmodic and a reliable sedative without apparent undesirable side effects (Tyler 1966). The distribution of *L. inebrians* is not completely known, but it seems to be endemic to Central Asia and found mainly in the area of the Zeravshan River (Fergana valley), from Bukhara to Pendzhikent in Uzbekistan and Kirghizia (Neustrueva-Knorring 1960). Several closely related species of the genus occur in the same area, but their possibe pharmacological properties are unknown.

Ephedras as candidates for Soma/Haoma

There is strong evidence for the identification of *soma/haoma* with plants of the genus *Ephedra*. These are leafless, usually dioecious gymnosperms containing

the alkaloids L-ephedrine and pseudo-ephedrine, which have clear sympathomimetic effects on man (Chen and Smith 1930; Hegnauer 1962: 441-464; Hegenauer 1986: 547-551). The plants are bushes of variable height (0.2-4.0 m) with a tree-like twisted trunk and numerous, leafless, green or yellowish stems. There are approximately 40, mainly Eurasian, species in the world, which are very difficult to identify when sterile. Those species occuring in mountainous areas have the highest ephedrine content (up to 3%; see below). The highest amounts are found in the autumn with no known difference between male and female plants (Massagetov 1932, 1938), and ephedrines are found mainly in the green parts of plants. The following table summarises the ephedrine content of some species (Massagetov 1938):

E. equisetina	max. 3.1%
E. intermedia	0.5 - 2.2%
E. distachya	0 - 1.7%
E. procera	0.9 - 1.5%
E. monosperma	< 1.5%
E. lomatolepis	0.1 - 0.2%
E. strobilacea	0.1%
E. fedtschenkoi	0 - 0.05%

The marrow parts of the stems of ephedras are either brown-colored or colourless (Falk 1989; Martens 1971: 24ff.). The brown colour reminds one of the Sanskrit adjective *babhru* ("greyish brown" - Falk 1989), which is used exclusively to describe the soma extract. The species containing most ephedrine are *Ephedra sinica Stapf* (a Chinese species, *ma huang;* Hu 1968), *E. equisetina Bge, E. intermedia Schr., E. procera F. & M.* and the European species *E. distachya L.* It should be remembered that the taxonomy of the genus is not well known and a taxonomic revision of ephedras would be very necessary today as their nomenclature is in a state of confusion. If it is accepted that the original home of the Indo-Aryans is in the Pontic-Caspian with a subsequent migration east- and northeastwards (Mallory 1989: 143ff., 222ff.), the only likely *Ephedra* candidate for the original *soma/haoma* is *E. distachya*, which occurs quite commonly in these areas in suitable localities. These plants have been used in folk medicine for a long time, and it is noteworthy that the Parsis of today cling to ephedras as the original *haoma*. In most Indo-Iranian languages of Central Asia, Iran, Afghanistan, Pakistan and Northern India the ephedras still go under some name derived from *soma/haoma*. Flattery (Flattery and Schwartz 1989: 70) provided an extensive list of these names (e.g. Nepali *somalata*, Pashto *oman/unan* etc., Baluchi *hum/huma/uma*, Persian *hōm/um/umah* etc., Punjabi *amsania*). Originally, however, *soma/haoma* has not been the name of the plant, but rather of the extract produced by the ritual pressing. The Old Indic *soma* and the Ave-

stan *haoma* are nouns derived from the verbal roots *su-/sau- (hu-/hau-)* "to press or extract (juice from something)". The much younger Turkic names for ephedras (for instance, Azeri *acylyg*) refer to their bitterness which probably can be neutralised by adding honey and/or milk to soften the taste.

In Europe, the most important ephedra is *E. distachya L.*, which occurs fairly commonly from the coastal areas of the Black Sea north-eastwards to the Southern Urals (Jalas and Suominen 1973: 39). In the areas north of the Caspian Sea, the northernmost recorded occurences of *E. distachya* are from Tartarstan (districts of Nurlat, Al'met'evsk and Bugul'ma; Markov 1979: 38-39), from Bashkiria, and from the Russian oblasts of Orenburg, Samara and Ul'yanovsk (Simbirsk). Locally, the species is common in these areas (Jalas and Suominen 1973: 39). *E. distachya* is also found in scattered locations in Spain, France, Italy, Hungary and the Balkan peninsula. In the Mediterranean coastal areas of Spain, in Albania and in Greece *E. distachya* is replaced by *E. fragilis Desf.* and its subspecies *campylopoda* (C.A.M.) K. Rich.

In Turkey, the distribution of ephedras is not well recorded, and only 3 species (*Ephedra major Host* (syn. *E. nebrodensis Tineo, E. vulgaris Tchich., E. procera F. & M.*), *E. distachya L.* and *E. campylopoda C.A.M.* (syn. *E. fragilis subsp. campylopoda*) are listed from Anatolia (Coode and Cullen 1965). Ten species of *Ephedra* are reported to grow in Iran and Afghanistan, among them four variaties of *E. intermedia Schr.& C.A.M., E. ciliata F. & M. ex C.A.M.* and *E. procera F. & M.* (Riedl 1963). The species richest in ephedrines, *E. equisetina Bge.*, is not reported from Iran. The list of Iranian ephedras given by Riedl (1963) is not entirely in accord with another Iranian list given by Parsa (1960: 872-881), who reports nine species from Iran.

The distribution of ephedras in India and Pakistan and in the former USSR is given below. A glimpse through these tables reveals the confused state of botanical nomenclature, and the names should not be taken too literally, although the names of ephedras with high ephedrine content (*Ephedra distachya L., E. equisetina Bge., E. intermedia Schr. and E. procera F. & M.*) seem to be fairly well established. It is important to note that in India ephedras are not common, because they do not thrive in a lowland, semi-humid or humid type of climate.

In Iraq, the following species have been reported: *E. alata Decne., E. transitoria Riedl, E. alte C.A.M.*, and *E. foliata (Boiss.) C.A.M.* (Blakelock and Gillett 1966). Of these, the first two are common and sometimes dominant in the desert regions. The stems and flower-clusters of *E. alata* are green in the spring and then turn yellowish-green, golden and finally coppery-orange, making a striking impression against a rocky desert background (*Ibid*). This brings to mind the colours most often associated with *soma/haoma:* the colour of the *aṃśu-* (Avestan *asu-*) is *hari* (Avestan *zairi* ; ("yellowish green to green" (Falk 1989); "golden" (Brough 1971)) or *aruṇá* (Avestan *aruṣá*: "reddish" (Falk 1989;

however, he is uncertain about the latter colour)). Accordingto Riedl (1963), the stems of *E. intermedia* and *E. equisetina* especially are blue-green.

The following is a summary of the *Ephedraa* species reported from Pakistan (Stewart 1972) and India (Chopra, Krishna and Ghose 1931, and Nasir et al. 1987):

SPECIES	SYNONYMS	DISRIBUTION
E. ciliata F.& M.	E. foliata Boiss. & Ky. + var. ciliata Stapf; E.peduncularis	Sind; Multan; N.W.F.P.; Baluchistan; Bombay; Rajasthan; Waziristan
E. gerardiana Wall.	E. distachya auct., non L.E. wallichii Stapf.	Waziristan; Chitral; Swat; Gilgit; Zanskar; Baltistan; Ladakh; Kashmir
E. intermedia Schrenk var. glauca (Rgl) Stapf		Baluchistan
E. intermedia Schrenk var. tibetica Stapf		Baluchistan; Chitral; Hunza;Baltistan; Kashmir
E. pachyclada Boiss.	E. intermedia Schrenk E. glauca	Chaman Pass; Tibet; Ladakh; Garhwal; Kashmir
E. procera F.& M.	E. nebrodensis Tineo var. procera (F. & M.) Stapf	Baluchistan; Chitral; Gilgit; Lahul; Western Tibet
E. przewalski Stapf		Nanga Parbat; Baltistan
E. regeliana Florin		Ladakh; Baltistan
E. sarcocarpa Aitch. & Hemsl.		Baluchistan
E. monosperma (C.A.M.) Gmel.		Karakorum
E. vulgaris Rich.	varieties: var. allichii var. saxatilia var. sikkimensis	Afghanistan; Baluchistan; Himalaya; Kumaon; Sikkim; Garhwal; Almora; Tibet

Apart from South Asia, the richest variety of ephedras occur in the territory of the former USSR, especially in its Central Asian and Western Siberian regions, which have long been favoured as homelands for the early Indo-Iranians and even Indo-Aryans. Reported species are (Bobrov 1968, Sokolov *et al*. 1977):

SPECIES	HABITAT	DISTRIBUTION
1. E. strobilacea	sandy deserts	Turkmenistan; Kara-kum; Kyzyl-kum; (Iran)
2. E. lomatolepis Schr.	sandy areas	Kazakhstan; Balkhash; Muyun-kum
3. E. ciliata C.A.M. (= E. foliata Boiss., E. kokanica Rgl.)	slopes lower mountain zone	Turkmenistan; Kopet -Dagh; Kara-kum; Pamir; Alatau
4. E. intermedia Schr.	gritty slopes, lower mountain zone	Turkmenistan;Pamir; Alatau, Tianshan; Dzungaria; Altai; Tarbatagai; Balkhash; West Siberia., (Kashgar, Tibet)
5. E. distachya L. (= E. vulgaris Rich., E. monostachya L., E. botryoides C.A.M E. dubia Rgl., E. stenosperma Schr.)	steppes, semi-desert	European part: Moldova; Ukraine; Crimea; Tatarstan; Bashkiria; Southern Urals; West Siberia; Caucasus; Dagestan; Central Asia: Caspian Sea - Aral - Balkhash (Dzungaria; Tarbatagai)
6. E. monosperma C.A.M (= E. monostachya Turcz.; E. dahurica Turcz.; E. vulgaris Trautv.)	stony slopes	West Siberia; Altai; East Siberia; Angara-Sayan; Upper Yenisey; Lena-Kolyma
7. E. fedtschenkoi Paulsen (E. monosperma auct.)	pebbles, gravelly slopes high mountain zone	Tian-shan; Pamir; Alatau; (Tibet)
8. E. equisetina Bge (= E. nebrodensis Boiss.)	mountain slopes, high mountain zone	Caucasus; Dagestan; Turkmenistan: Kopet-Dagh; Central Asia; Pamir; Alatau; Tian-shan; (Dzungaria; Tarbatagai)

Kirtikar and Basu (1933: 2372-2374) state that the ephedras most commonly used for medicinal purposes in India are *Ephedra gerardiana Wall.* (syn. *E. vulgaris L. (ex. Hook.?)*) and *E. intermedia Schr. & Mey.* (syn. *E. pachycladia Boiss.*). These are used for the treatment of rheumatism, syphilis, asthma, heart failure, fever, and various infections of the respiratory tract. *Ephedras* are also recognised as medicinal plants in the Ukraine (Myakushko and Zinchenko 1982: 33-34; *Ephedra vulgaris*), in Tatarstan (Markov 1979: 38-39; *Ephedra distachya*), in Uzbekistan (Ivanova-Paroiskaya 1949: 64-67; *Ephedra equisetina, E. intermedia*), in Kirghizia (Gubanov and Botsmanova 1963: 4-7; *Ephedra equisetina, E. intermedia*) and in southern Siberia (Altai - Utkin 1931: 49; *Ephedra vulgaris*). Utkin (1931) states that in Siberia the active compounds of the ephedras are extracted with vodka to prepare the medicine. The medicinal plant floras of Bashkiria (Lind 1929) and the Mari republic (Vasil'kov 1946) do not mention the use of ephedras at all, although *Ephedra distachya* can be found in Bashkiria. For a long time, Russians have been aware of the medicinal properties of the ephedras (Massagetov 1932, 1938).

Flattery (Flattery and Schwartz 1989) is well aware of the very ancient use of the ephedras as *soma/haoma* in both India and Iran, and that the Parsis still use these plants as *hōm*, but argues that ephedras could not have been the original **sauma* (he uses this word as a working name for the plant) and that the ephedras were an archaic additive to the original extract (Flattery and Schwartz 1989: 68ff.). It is clear from his text that he has met with difficulties in trying to explain away the evidence pointing to the ephedras as the original *soma/haoma*, because this evidence contradicts his identification of *Peganum harmala* with *soma/haoma*. The main reason he rejects the ephedras seems to be the fact that, from the beginning, he has been looking for a hallucinogenic and/or intoxicating plant, which the ephedras, in his opinion, are not. It is true that the ephedras are not hallucinogenic, but in my opinion, it is not correct to call them "non-intoxicating", as they do have the capacity to affect human physiology in the following ways (Chen and Smith 1930)

1) **Rise in blood pressure with doses of 50-125 mg: tolerance may develop**
2) **Increase in heart muscle contraction**
3) **Decrease in pulse rate**
4) **Stimulation of metabolism**
5) **Increase of perspiration**
6) **Hyperglycemia followed by hypoglycemia**
7) **Stimulation of CNS (insomnia, tremor, nausea)**
8) **Dilation of eye pupils (mydriasis)**
9) **Relief of asthma, cough, hay fever**
10) **Antidote for narcotic drugs**

Furthermore, it is a clinical fact that if a person does not use a drug very often (for instance, if the use is limited to solemn sacrifices), the pharmacological effects of any drug can be quite powerful. It should be remembered that the clinical effects of epinephrines, reported in the literature, have been evalutated with modern experiments on modern men usually belonging to European cultures. To say that the effects of the ephedras are "of insufficient intensity" or "too inconsistent in character" (Flattery and Schwartz 1989: 72) seems to reflect a tendency to apply modern methods of clinical drug evaluation to an ancient culture having a very different psychological pattern and way of life when compared with modern Western culture.

Archaeological evidence for the early use of ephedras

The earliest archaeological records about the use of ephedras come from Turfan, in the territory of ancient Lou-lan, where Sir Aurel Stein (Stein 1931) found bunches of broken plant twigs in several graves. These were determined by the British Museum to be fragments of *Ephedra*. Stein (1931) discussed these in the light of the use of ephedras as *haoma* by the Parsis but, for some reason, he could not accept the conclusion that ephedras were identical with *soma/haoma*, and proposed that a species of wild rhubarb (*Rheum L.*) was the original *soma/haoma*. He argued that a wine was made from the stems and the fleshy leaf stalks, and that the reddish colour of the stalks agreed with the colour descriptions of *soma/haoma* in the Ṛgveda and Avesta. The proposal, that an alcoholic drink was made from the plant, is not surprising, because the rhubarb contains no sympathomimetic or CNS-affecting compounds itself and thus alcohol would be necessary to produce some effect. Therefore Stein's (1931) ideas about the wild rhubarb must be rejected together with all others suggesting that a fermentation product was the original *soma/haoma*.

Flattery (Flattery and Schwartz 1989: 73) suspects that Stein did not find ephedras in the graves at all, as some of his floral samples were examined at Kew Gardens in 1984 and were found to be the remains of horsetails (*Equisetum L., Equisetaceae*). This type of mistake made in the original determination of the plant remains is understandable because horsetail stems indeed bear a superficial resemblance to the stems of ephedras, and the morphological differences between these two genera were perhaps not easily recognizable in ancient grave specimens. Some horsetails (especially *Equisetum arvense L.*) are used as medicinal plants even today, mainly because they contain saponines and, in particular, silicic acid (Wagner 1985: 155). However, horsetails contain no sympathomimetic or CNS-affecting compounds. Morever, they are small plants when compared to the ephedras, which can attain a considerable height.

Solecki (1975) reports that pollen from ephedras were found along with pollen from some other plants in a Neanderthal burial from the cave site Shanidar IV in northern Iraq, dating to about 60,000 years ago. He states that the pollen definitely came from plants buried with the dead person, and the other pollens found were mostly from plants with a recognised medicinal value. However, as this is the only known case where flowers have been used in a burial from this period, no basis for comparison is available. Prehistoric, but much younger, remains of ephedras have also been reported from the temple-fortress complex of Togolok 21 in the Merv oasis (ancient Margiana - Parpola 1988; Meier-Melikyan 1990) along with the remains of poppies (*Papaver L.*, but it is unclear whether the species was *P. somniferum, P. setigerum* or some other poppy). In 1991, I received some samples from the site,[3] which were subjected to pollen analysis at the Department of Botany, University of Helsinki. However, upon analysis, it was evident that most of the pollen in the samples had been destroyed, most probably as a result of unfavourable climatic conditions for pollen preservation at Togolok 21. As a result of this lack of preservation, in most cases only pollen of the family Caryophyllaceae was found, along with some pollen remains from the families Chenopodiaceae and Poaceae (grain crops?). The largest amout of pollen was found in a bone tube (used for imbibing liquid?) from Gonur I, but even in this sample, which had been preserved in a comparatively sheltered position when compared with the other investigated samples, only pollen of the family Caryophyllaceae was present. No pollen from ephedras or poppies was found and even the pollen left in the samples showed clear traces of deterioration (typical in ancient pollen having been preserved in a dry environment in contact with oxygen). Our pollen analysis was carefully checked for any methodological errors, but no inaccuracies were found. Thus, further archaeological investigations are very necessary to add weight to the existing, but scarce, archaeological evidence for the early use of ephedras.

Conclusions

On the basis of the existing botanical evidence concerning the identity of *soma/haoma*, I have arrived at the conclusion that the ephedras best meet both the textual and pharmacological requirements for the botancial identification of *soma/haoma*. However, I do not rule out the possibility that *soma/haoma* may have been pressed from more than one plant, either in the ancient beginnings of the sacrifice or in later times. I agree with the explanations by Qazilbash (1960), Mahdihassan (1963, 1974, 1985), Falk (1989) and Kashikar (1990), although on different, mostly botanical, grounds. The remarks of Brough (1971) on the

[3] Forwarded by Dr. Fred Hiebert of Harvard University.

subject are also very valuable, in spite of the fact that his main purpose was to refute Wasson's (1968) ideas, and although he seemed to favour the ephedras as being identical with *soma/haoma*, he refrained from actually proposing this. In my opinion, conclusive evidence for the identification of the ephedras as the original *soma/haoma* can now be provided only by further archaeological discoveries. This seems to be the most promising way of shedding new light on the problem because existing textual sources and their analysis seem to have been fully exploited.

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